



MARINE CORPS GAZETTE

December 1951

thirty cents

127

Marine Corps Gazette

DECEMBER 1951

CONTENTS

NOTES ON OUR AUTHORS	14
WIN, PLACE, AND SHOW FOR THE JETS By Col Jack R. Cram and Col Charles L. Banks	15
THE HUNGNAM EVACUATION By Lynn Montross	18
IN BRIEF	28
BURNSIDE'S AMPHIBIOUS DIVISION By Robert W. Daly	30
LET'S USE WHAT WE HAVE By Capt George M. Bryant	38
KOREA AWARDS	41
BIG DELTA By LtCol Ronald R. Van Stockum	42
HOW WOULD YOU DO IT? By LtCol Frank Mallen	51
ABC'S OF HELICOPTERS By LtCol K. B. McCutcheon	52
FIND THE GIMMICKS By TSgt C. R. Barrow	58
PASSING IN REVIEW	60

Opinions expressed in the Marine Corps GAZETTE do not necessarily reflect the attitude of the Navy Department nor that of Headquarters, United States Marine Corps.

THIS MONTH'S COVER: The last demolition team aboard, a Navy APD moves out into the stream as a terrific explosion marks the end of the Hungnam evacuation. **BACK COVER:** The "Big Mo's" guns help keep the Chinese Communist forces from moving in on the Hungnam beachhead.

Picture credits: All pictures official Army, Navy, Air Force, or Marine Corps photos unless otherwise credited.

MARINE CORPS GAZETTE

Professional Magazine for the United States Marines
JOURNAL OF THE MARINE CORPS ASSOCIATION
Offices: Box 106, Marine Corps Schools, Quantico, Virginia
Telephone: Extension 4780 or 6738

MajGen Henry D. Linscott Editor-in-Chief
Maj James A. Pounds III Editor and Publisher
Capt Paul D. LaFond Managing Editor
Capt Paul F. Bent Business Manager

EDITORIAL BOARD: Col Marion L. Dawson, Col Peter J. Speckman, LtCol Thomas A. Culhane, Jr., LtCol Warner T. Bigger, Maj Billy W. Matthews, Capt James M. Jefferson, Jr., 1stLt John A. Buck.

EDITORIAL STAFF: Sgt Norval E. Packwood, Jr., PFC Roy Thompson, Miss Rosemary Leadman.

BUSINESS STAFF: SSgt N. C. Berthelsen, Sgt S. F. Fusaro, Sgt J. L. Ashley, Sgt R. A. Ripley, Sgt K. C. Moore, Cpl E. P. McLaughlin, Cpl N. T. Stovall, PFC J. M. Cizaukas, PFC J. E. Gernand.

ADVERTISING: Capt Murray Martin, USMCR, 2 West 46th Street, New York 19, N. Y. Phone LUxemburg 2-1540.

THIS MONTH AND NEXT—It is nice to have the U.S. Navy around, and we think members of the 1st Mar Div and X Corps will agree. This month's Historical Division article on Korea tells the story of how the Navy evacuated X Corps from Hungnam and put it ashore to fight again. This *Amphibious Operation in Reverse* was just as important as an assault landing.

Many millions of words have been written about Russia and its Communist leaders, but we would like to recommend the few thousand in the January GAZETTE for a real understanding of the Soviet objectives. In *Background for Russian Action* LtCol J. D. Hittle, long-time Russian student, traces the modern foreign policy of Russia and shows that the basic objectives and methods of attainment have not changed in the past 200 years. We think it will give every Marine a better understanding of the disagreements in the world today.

VOLUME 35. NUMBER 12. Published monthly by the Marine Corps Association, Box 106, Marine Corps Schools, Quantico, Va. Copyright 1951. Entered as second-class matter at the post office at Quantico, Va., under the act of March 3, 1879. Single copy, 30 cents; subscription rate, \$3.00 a year. Subscriptions of all members or honorably discharged former members of the Armed Forces include membership in the Marine Corps Association. Articles, photographs, book reviews and letters of professional interest are invited. If accepted, these are paid for at prevailing space rates. Material may not be reproduced without written permission.

ORDER NO.

SUBJECT

Reflex Klystron Oscillator

NAME R. Brown

DATE 1/23/51

Requirement:-

A wide-band klystron in Ku band which operates at low voltage (less than 350 v.)

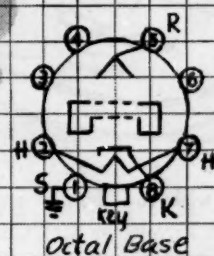
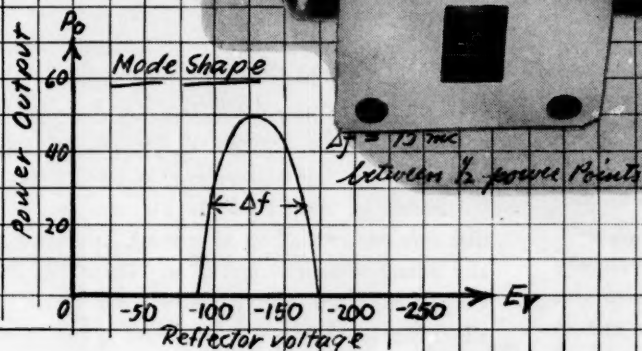
Choice #1:- Type SRU-55 reflex klystron

Data:- Covers range from 14000 mc to 17500 mc. (3500 mc, 22% band)
15-60 mw. output. Max. beam voltage = 350 v.Tuned by means of
Waveguide

0.702" x 0.391" w.

Mount.

max temp 70°C.



1. Shell, B+ (Gnd.)
2. Heater
- 5 Refl. (all other pins are Int. Conns.)
- 7 Heater
- 8 Cath.

... WIDE TUNING RANGE with LOW-VOLTAGE KLYSTRON

14,000 to 17,500 MC at 300 VOLTS

Type SRU-55 is a low-voltage, reflex klystron oscillator with radio frequency output of 15 to 60 milliwatts, operating over the frequency range of 14,000 to 17,500 mc. This Sperry tube can be used as a local oscillator for microwave receivers or as a bench oscillator in the measurements laboratory.

Operating at a frequency of 16,000 mc with a beam voltage of 300 volts, this tube provides 25 milliwatts of output power. Under these conditions the modulation sensitivity is approximately 1.3 megacycles

per volt. The electronic tuning range measured between 3 db points is 75 megacycles per second.

Physical characteristics of Sperry Type SRU-55 are: weight, 3 1/4 oz. — height, 3 1/16" — mounting, standard octal 8-pin socket (in any position). The r-f connection is a standard UG-419/U fitting for 0.702" x 0.391" waveguide. Its cathode is of the oxide coated, unipotential type. For ambient temperatures below 70°C, only free convection cooling is required. The tuning adjustment on this tube is

driven by a 1/4" shaft containing a screwdriver slot.

For additional information on Type SRU-55 and other Sperry Klystrons, write our Special Electronics Department.

MODEL SRU-55

GENERAL CHARACTERISTICS

Freq. Range	14,000-
(mech. tuning)	17,500 mc.
Heater Voltage (ac or dc)	6.3 v.
Heater Current	0.6 amp.

MAXIMUM RATINGS

Beam Voltage	350 v.
Beam Current	35 ma.
Reflector Voltage	0 to -350 v.
Heater-Cathode Voltage (peak)	45 v.

SPERRY

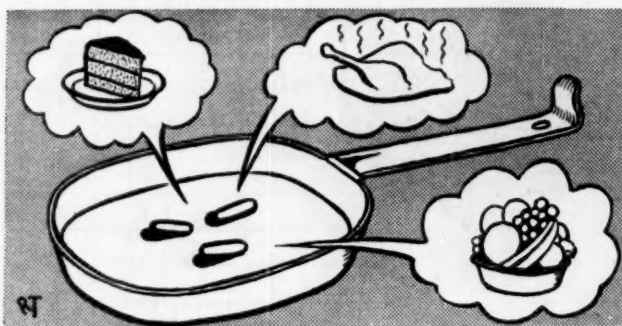
GYROSCOPE COMPANY

DIVISION OF THE SPERRY CORPORATION

GREAT NECK, NEW YORK · CLEVELAND · NEW ORLEANS · BROOKLYN · LOS ANGELES · SAN FRANCISCO · SEATTLE
IN CANADA — SPERRY GYROSCOPE COMPANY OF CANADA, LTD., INTERNATIONAL AVIATION BUILDING, MONTREAL

Message Center

No Soybeans, Thanks . . .



DEAR SIR:

I read with considerable interest the article entitled, *Austerity and Victory* by Col Charles L. Banks. Judging from the tone of the article one would suppose that the surest way to a quick victory in Korea would be for the troops to give up their post exchange, fresh fruit, and fresh meat and in their place carry a small bag containing green soy beans, sugar maize, small wheat pellets and sorghum, one pound of which has the equivalent caloric value of two pounds of steak.

In the beginning of his article he states that we are fighting an enemy that greatly outnumbers us. I think that the proper answer to this problem would be to put more troops into the fight rather than change the diet of the men.

To compare the war in Korea with the fight of the early Americans against the Indian is like comparing the mule train with the Chicago Limited. Both are modes of transportation, however, the mules required only a small amount of food and could if necessary live off the land.

It is true that the early Americans fought an enemy every bit as well trained, self reliant, and self sustaining as the Chinese. However, the statement that a handful of mountain men could defeat, time and again, large Indian war parties and stand off great numbers of attacking Indians was the exception rather than the rule. Time and again the Army was called on to give help and protect settlers and in many cases they furnished them with food. As a matter of fact an American general by the name of Custer got into a little battle with some Sioux Indians who settled the issue beyond a question of doubt. Custer, too, was fighting an enemy that greatly outnumbered him. I'm sure his diet had nothing to do with his defeat.

Also, I don't think you can say that the early American lived on a few soybeans. Since he was not in continuous battle he had a little time to hunt and fish, and his diet at

times included such things as turkey and venison just as we have turkey on Thanksgiving.

Then too, there is the question of restrictions. The early American in his fight was not restricted as to movement or methods of warfare, nor was there a protective sanctuary behind which the enemy could retire for protection.

Also different motives; what the American took from the Indian in the way of real estate he was able to keep and if the Indian again drove him out he could call on the Army to help him get back in.

Let there be any doubt concerning the characteristics of our forefathers and those of our present members of the Marine Corps, I would suggest as excellent reading material the history of the six Marine divisions in WW II. To say that *only* our forefathers were brave, intelligent and ingenious, and admitted to no equal is an injustice to the men of the Corps today. There isn't a man in the Corps today who will admit that anyone is his equal and if you don't believe this just ask him.

This article on how to make a better fighting man out of a Marine by depriving him of his chow is similar to those articles on leadership which continually stress the word punishment.

An officer or noncommissioned officer who has been entrusted with the care of a regiment, battalion, platoon, section, or squad should not spend his time figuring out how little he can give his men but how much he can procure for them, be it food, medicine or spiritual comforts. I am sure that such treatment will make better fighting men than the policy Col Banks advocates.

We should all be busy trying to figure out what more we can give them rather than how much we can take away from them.

I would like to read other opinions on this same subject.

B. W. GWINN,
SSgt, USMC

PS: We have been telling men that we are the best fed fighting troops in the world.

Tougher Attitude . . .

DEAR SIR:

Col Charles L. Banks, in his article *Austerity and Victory*, expressed an opinion regarding the training of U.S. troops which seems to be universally held by almost all people, both in and out of uniform, who have attempted to assay the



It Takes 500 Tons of Equipment for Just One Telephone Exchange

Five hundred tons of equipment and 62,000 man-hours of work are needed to install just one 10,000-line Dial Telephone Exchange.

Here's the story of months of work condensed into two minutes of reading time. (Bear with us, please, if several of the words get technical.)

There are 1800 crossbar switches, 4000 multi-contact relays and 65,000 conventional relays. These automatic switching mechanisms open or close millions of telephone circuit paths.

Eighty miles of cable are needed to connect all this apparatus. There are 2,600,000 soldered connections, each one a careful hand operation.

All that is for only one Telephone Exchange to serve one community. At present-day prices, the cost runs to \$1,500,000.

The money for these new facilities must come largely from investors who are willing to put their savings in the business.

Only through reasonable earnings can the telephone company attract the new money that is needed to do the job.

BELL TELEPHONE SYSTEM





Officers

**INSURE IN
YOUR OWN
ASSOCIATION**

**Get
Sound and**

Practical Insurance at Lower Cost
AUTOMOBILE, HOUSEHOLD & PERSONAL EFFECTS

In effect, your United Services Automobile Association is an organization of officers and warrant officers who pool their funds for mutual protection. There is no profit. In over a quarter century of service, this plan has proved its effectiveness in consistently large savings to its members. Take advantage of this well established, low-cost insurance plan, now!

UNITED SERVICES
Automobile Association

Dept. G. 1400 E. Grayson Street
San Antonio 8, Texas

EVERYTHING MARINES NEED

**All Uniforms and Accessories
For Members of The Marine Corps**

New Raincoat	\$30.00 (no liner)
New Topcoat	85.00 (with liner)
Green Uniforms	95.00
Blue Uniforms	95.00
Trench Coat	50.00
Florsheim Shoes	19.50 to 24.50

**Uniforms delivered in three to
thirty days**

Since 1918

A. M. BOLOGNESE & SONS
Tailor and Haberdasher
Quantico, Va.

U. S. Marine Corps
Outfitters Exclusively

American armed forces in any light other than an emotionally patriotic one. The same people, however, when talking of the well known remedies to the existing situation are prone to dismiss the problem by saying that the American people would never tolerate the methods needed (tight discipline—more and rougher field training) to produce a really first class fighting machine. This attitude alone can do much to hinder the progress of our forces, for it is an attitude which, I believe, is fallacious.

The American people of 1951 are quite different from those of 1941. It is true that it hurts a mother to see her loving son troop off to the induction center just as much now as it did 10 years ago. Mother love doesn't change much. But everything else has.

In the first place, the old attitude of "anything for the boys in the service" is gone. Replacing that is a feeling that the services should have what they need but that it also might be a good idea to check the excessive waste which was so prevalent during WW II. Americans are beginning to realize that we are going to have large armed forces for a good many years to come, and they are becoming a little more businesslike about the proposition, and somewhat less emotional when the local boys are called to the colors. The most potent influence in this change of heart has come from the some 20 million people who were exposed to service life themselves and who, though all of them didn't like it, were forced to admit that the business of soldiering is very much the same as any enterprise on the outside in that any organization is just as good as the effort of each of the individuals attached to it, and no more.

The reaction of the individual draftee will probably be standard wherever he goes. If he goes into a rough boot camp or indoctrination center, and finishes the rest of his cruise in the boondocks learning how to shoot, walk, and generally become an asset to his organization and country, he probably won't like it at all. If the same man spends his service career as a clerk in a post hostess house, or occupying some insignificant administrative position which could be eliminated, and alternates his time between reading comic books and visiting the snack bar, he still won't like it. In both cases the man has one thing on his mind—getting out of the service, but in the former case the man can't help but get a little esprit de corps if he is really earning his pay. In the latter case, his disgust for military life will soon turn into contempt for everything that even smacks of the military service and rightly so. As long as you are getting the bodies into uniform, therefore, you might as well utilize them as you know they should be used and disregard the inevitable loud wails of a conscript army.

Complaining letters to Congressmen may or may not increase. I personally knew of very few Marines or army paratroopers who felt that they were being abused. As much as some of these men, now returned to civilian life, hated military service during WW II, they are the first today to pledge loyalty to their old units. Even if, by coincidence,

Only the Railroads offer
Nation-wide Reduced Furlough Fares



Ride the Railroads

AMERICA'S ONLY COMPLETE TRANSPORTATION SYSTEM

- *Reduced coach fares . . . no tax!*
- That's why furlough travel means train travel—fine, fast service at substantial savings!
- And when you travel by train, you leave on schedule, get home on schedule . . . report back on schedule.
- Travel the dependable way—via America's only complete transportation system.

THE MILITARY COMMITTEE OF THE

Railroads of the United States



OFFICERS DEMAND SPECIFIC PROTECTION

*When the iron-clad Merri-
mac threatened the fleet,
the Monitor was there with
a unique protection.*

The UNITER, life insurance protection for officers only, offers the specific coverage an officer requires, in this same spirit of meeting a definite need—world-wide coverage—without restrictions.

**NOW—\$10,000.00 of Life Insurance available with
NO WAR CLAUSE**

Write to your service company for details—NOW

United Services Life Insurance Company

1625 Eye Street, N. W., Washington 6, D. C.

the volume of congressional mail should increase, a roster of that body shows a large proportion of ex-field soldiers who, I believe, are looking for the same changes in the American military establishment. It is up to the people in positions of authority who are in the services now to effect the change.

I have two more comments, neither of which is related to the above discussion.

First, the August issue of the GAZETTE, like so many of your well balanced issues contained two articles of historical value. *Russia's Old Powder Keg* (Gellner) and *The Stalin-grad Offensive* (Henzel). Both were fine articles, but neither one had any reference data, in footnote form or otherwise, which surely must have been used in writing them. Such data would be of value to the reader and would also give a more firm basis for the credibility of the contents of these articles.

Second, the splendid record of the 1st Mar Div in Korea has certainly made a profound impression on those of us who are on the outside. The Marine Corps once again seems to be Uncle Sam's ace in the hole. I think the circumstances this time make the fact even more obvious than ever before.

JAMES H. HOLT

ED: The majority of our readers seem allergic to foot-
notes; however, we'll gladly send you the author's address
if you wish to obtain the reference data on any GAZETTE
article.

AN AMAZING GADGET TO KEEP YOU WARM!

ABERCROMBIE'S ORIGINAL POCKET HEATERETTE

Maintains 125° of HEAT up to 24 hours on one filling of
Abercrombie's Heaterette Fluid!

(Ordinary Lighter Fluid or Unleaded Gasoline will do!)

Lit by a match to start its extraordinary flameless and fumeless
burner element. Your heaterette will give you months of reliable,
safe and efficient service!

**SLIP ONE IN YOUR GLOVE—DROP ONE DOWN A BOOT—PUT ONE OR MORE
IN YOUR SLEEPING BAG—AND FORGET THE COLD!**

Beware of cheap imitations that clog up and burn out quickly!

**SPECIAL TO THE SERVICE—Heaterettes (list \$3.50) delivered Air Mail—\$2.95 each Postpaid
OR BETTER YET—A Heaterette and Enough Abercrombie Fluid for 30 days**

of normal operation (small and light enough to carry in your pack)—\$4.95
plus \$2.45 for OVERSEAS AIR PARCEL POST—Total \$7.40

(add 50c only for Stateside Postage if not overseas—Total \$5.45)

AND IF YOU WANT AN AUTOMATIC RESUPPLY EVERY MONTH WITHOUT FURTHER TO DO

Send us \$2.50 for each month you think you will be in cold weather
and your resupply of fluid will come every 30 days by Parcel Post—

(Add \$2.00 per month if you want it AIR PARCEL POST!)

OVERPAYMENTS FOR POSTAGE WILL BE REFUNDED

GEORGE O. VAN ORDEN
Brig Gen., USMC, Ret'd
President

EVALUATORS LTD.

Quantico, Va.
Telephone—Triangle 80-J

FLORA M. VAN ORDEN
Vice President
Sales Manager





NOW - Freedom to choose Air Travel!

TRANSPORTATION OFFICERS now have complete freedom to issue Air Transportation via Scheduled Airlines . . . solely on a basis of the military requirements. Latest regulations discard all special "preference" favoring any one form of commercial transportation.

THE ONLY TEST is a carrier's ability to move personnel with the required efficiency. The Scheduled Airlines save vital time and manpower . . . move individuals or large groups with unequalled Speed, Comfort and Economy.

Today's Travel is Air Travel

INSURANCE! . . . Only on SCHEDULED Airlines, \$5,000 to \$25,000 at 25c to \$1.25.
Covers trips in United States—trips between any points in U. S., Canada, Alaska
and Hawaii—trips between U. S. and Mexico, Bermuda or West Indies.

10% DISCOUNT for personnel of the Department of Defense traveling on official business
using Government Transportation Requests.



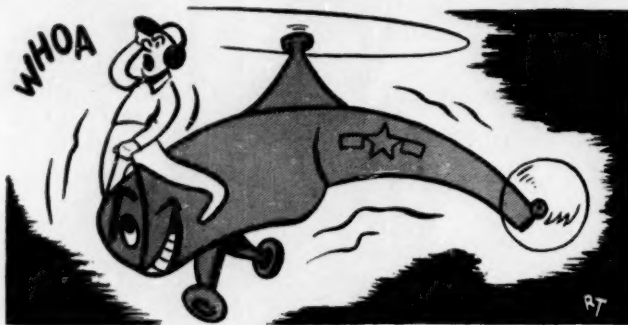
THE *Scheduled Airlines* OF THE U.S.A.

ALL AMERICAN AIRWAYS
AMERICAN AIRLINES
BONANZA AIR LINES
BRANIFF AIRWAYS
CAPITAL AIRLINES
CENTRAL AIRLINES
CHICAGO & SOUTHERN AIR LINES
COLONIAL AIRLINES
CONTINENTAL AIR LINES
DELTA AIR LINES

EASTERN AIR LINES
EMPIRE AIR LINES
FRONTIER AIRLINES
INLAND AIR LINES
LAKE CENTRAL AIRLINES
MID-CONTINENT AIRLINES
NATIONAL AIRLINES
NORTHEAST AIRLINES
NORTHWEST AIRLINES
OZARK AIR LINES
PIEDMONT AVIATION

PIONEER AIR LINES
ROBINSON AIRLINES
SOUTHERN AIRWAYS
SOUTHWEST AIRWAYS
TRANS WORLD AIRLINES
TRANS-TEXAS AIRWAYS
UNITED AIR LINES
WEST COAST AIRLINES
WESTERN AIR LINES
WISCONSIN CENTRAL AIRLINES

Unruly Pegasus . . .



Dear Sir:

I have read with much interest LtCol Robert E. Collier's recent paper *Pegasus*. . . I find disagreement with the colonel on two basic points. First, when he says that the ultra-simple, single-place helicopter will give us the ultimate in "organic" reconnaissance vehicles; and, second, when he says, "conventional-type helicopters, organic to VMO squadrons, are not, and can not be provided in sufficient quantities for use by lower unit commanders."

Any helicopter, unfortunately, is an unruly *Pegasus* and requires the constant attention of its "rider." Due to its inherent instability, the helicopter is an aircraft that must be manhandled all the time it is in the air. The minute the pilot removes his hands and attention from the mechanics of flying the aircraft (say, to orient his map) the aircraft attempts to "commit suicide" by flopping into a series of uncontrolled gyrations. This is not to say that it is impossible to navigate a helicopter, but rather the pilot cannot remove his attention from the aircraft for sufficient periods of time to permit a detailed map-terrain reconnaissance.

I take one more exception to the colonel's thesis. . . Aerial reconnaissance must be centrally controlled and coordinated if it is to be correctly utilized. There is already enough duplication of reconnaissance effort in the division without adding the confusion of 80 to 100 one-man air-chariots flitting over the division front. . . I object to having aircraft "assigned" to all levels of command. Without going too far into the problems of rotary winged aircraft, let me say that the logistical problems inherent in even the ultra-simple ram-jet helicopters now under development would far outweigh the dubious benefits of permitting each commander the use of his own personal helicopter.

. . . There are at present two aircraft which are particularly well suited to the type of reconnaissance under discussion. They are: The HTL-4 manufactured by the Bell Aircraft Corporation; and the HO5S-1 put out by the Sikorsky Division of United Aircraft Corporation. The HTL-4 has already been battle-tested by VMO-6 in Korea and has proved itself to be a basic design which is ideally suited to aerial reconnaissance. Further, this plane is an excellent ambulance and utility aircraft, thus giving us a machine which is flexible enough to meet not one but several needs of the infantry and

artillery commanders. A fact which would be impossible with a single-place helicopter. The HO5S-1, though as yet untried in combat, is of a basic design similar to that of the HTL-4 and should deliver a comparable performance.

A greater step, even than the development of newer and better aircraft, toward furnishing the desired reconnaissance lies in developing a realistic SOP for the employment of the new VMO and HMO squadrons now under consideration by Headquarters Marine Corps. These are the units that can and will furnish our commanders the reconnaissance they deserve—*IF* they are properly employed.

The Korean War has taught us a great many things about how to use this weapon, the helicopter. Unfortunately, however, on too many occasions the "convenience" of the rotary-winged craft has led to its abuse. Staff officers have been carried on administrative and logistical trips because the helicopter was so much "handier" than the jeep. The helicopter is *NOT* a vehicle of convenience and until we learn that its ability to avoid the dust and confusion of the MSR (which the jeep cannot) does not mean that it is to be used as a replacement for the jeep, we can never deliver to our commanders the tactical observation missions (or a myriad other tasks) they deserve; whether the helicopter be assigned to the company, the battalion, the regiment, or the HMO squadron.

NORMAN G. EWERS,
Capt, USMC

Compulsory Study for Officers . . .

DEAR SIR:

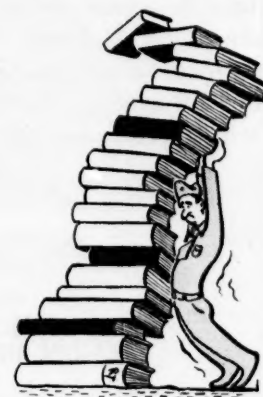
As an officer who is not a college graduate, I have been very interested in the many letters concerning college education for Marine officers.

I think MSgt Mac Marine in his letter in the August issue has the right idea on the subject. It is an officer's own duty to prepare himself to be the best possible Marine.

It is obvious that he cannot learn everything, so perhaps his best bet is to concentrate on his professional subjects and supplement these with other study of subjects of a general nature.

If a Marine officer is well versed in his professional subjects, you will find that he is well on the way to being an educated man and he can pretty well round out his education through MCI courses and by selected reading of the better newspapers, magazines, and books.

In connection with his professional education, I suggest that officer promotion examinations be discontinued permanently and that a system of compulsory education through MCI correspondence courses be substituted therefor.





SPECIAL DELIVERY IN A RICE PADDY

Pin-point delivery in a Korean rice paddy... paratroop units with complete, fully-assembled equipment and supplies are ready for instant action... where no roads or airfields exist—tough, battle-proven Fairchild C-119's provide "Special Delivery."

Speed, stamina and versatility—key points of Fairchild engineering and design—have made the rugged, dependable "Flying Boxcars" the all-purpose transport for military airlift operations of the United Nations forces in Korea, and for other airlift operations in Europe and the United States.



ENGINE AND AIRPLANE CORPORATION

FAIRCHILD

Aircraft Division

Hagerstown, Md. Chicago, Ill.

OTHER DIVISIONS: ENGINE, GUIDED MISSILES AND STRATOS DIVISIONS, FARMINGDALE, N. Y.

Before being considered for promotion, each officer would be required to complete satisfactorily a correspondence course which would cover subjects appropriate to the two next higher ranks. As Col Victor Bleasdale used to say, "We learn only if someone compels us to do so," and this method would accomplish just that. As it stands now, the list of study references for officer promotion is so lengthy and formidable that many officers feel that they do not know where to begin and consequently never get around to beginning anywhere; but trust to luck that their normal duties will prepare them for their exams.

With compulsory correspondence courses in professional subjects, the Marine Corps would be assured that its officers are being well prepared professionally and the time saved through this system of guided study would give the individual officer added time to devote to MCI courses and other general study.

C. F. McKIEVER,
Capt, USMC

T/O Not Last Word . . .

DEAR SIR:

To a majority of individuals, regardless of profession, the printed word is an absolute truth. Merely because it is in black and white on paper, many are prone to accept it as being unconditionally true. This apathy sometimes extends to military personnel when they are confronted with a Table of Organization. Merely because a T/O is in print and has been issued by a higher echelon, it is accepted as a universal truth and becomes untouchable. This is not the case. A T/O is merely the most recently issued document authorizing what is believed to be the correct number and selection of personnel to accomplish a particular military mission.

It does not hold that it is the best. It was the best when issued, as based upon the experiences of the most capable personnel available. Later experiences may prove or indicate that by modifying a T/O, the assigned military mission can be accomplished more efficiently.

If by actual experience it has been determined that a T/O should be changed, say so. Don't keep it to yourself. Give other organizations the benefit of your knowledge. Don't be afraid of your T/O. Higher echelons realize that it is on the working levels that their policies are proved correct or incorrect, workable or unworkable, and where it is determined if changes and modifications should be made. However, they will not know unless we get the information to them.

The point is, some T/Os need to be modified. If yours does, do something about it. Don't let your T/O scare you out of a belief believed to be correct. Arm yourself with facts and figures, put them in a workable form and then let your superiors know about it. They in all probability will welcome your recommendations.

BELMONT FORSYTHE,
Capt, USMCR

NCO Fitness Reports . . .

DEAR SIR:

Since serving on the last staff NCO selection board, I realized that the NCO fitness report offers a challenge to all officers to try and improve the report form. This improvement should be aimed at clarity, simplicity, and yet accurately indicate the individual's value to the service and his command.

I am enclosing herewith a copy of the form I "doodled" up during the board's trials and tribulations for a five-week period. Admittedly, it is not the perfect answer, but is submitted in an effort to evoke comment from other marking seniors through the Message Center section of your excellent magazine, and which may ultimately result in a streamlined, yet effective, NCO report.

ROBERT A. SMITH,
Maj, USMC

FITNESS REPORT OF NONCOMMISSIONED OFFICERS

REASON FOR REPORT

NAME _____	Rank USMC(R) _____	Trans of NCO
SER. NO. _____	MOS _____	Semi-annual
PERIOD COVERED _____		Special
		Relief of ReptgO
PRIMARY DUTY _____		Extended Rept
		Discharged
ADDITIONAL DUTIES _____		Retired
		Died
CURRENT ADDRESS, NEXT OF KIN _____		

PERFORMANCE RATING GUIDE

Proficiency	Rating	Rating Qualifications
	NOT OBSERVED	Period of one month or less, on TAD, Sk Hosp, etc.
1-3	UNSATISFACTORY	Below average. Detrimental to unit efficiency.
4-6	SATISFACTORY	Average NCO. Minimum efficiency without injury to unit.
7-8	VERY GOOD	Above average NCO. An asset to unit.
9	EXCELLENT	Highly efficient. Well qualified for promotion.

MARKING OFFICER'S RATING

	NOT OBS	UNSAT	SAT	VG	EXC
Regular duties					
Additional duties					
Technical ability in MOS					
Troop handling characteristics					
Troop training ability					
Tactical handling of troops					

Remarks: (List here any personal characteristics or qualifications which may have a bearing on man's military efficiency.)

Conduct Mark for prd covered _____

Promotion (is) (is not) recommended.

(Signature of Reporting Officer)

I have seen this report which has been explained to me and:

() Do not desire to submit a statement.

() Statement is attached.

(Signature of NCO)

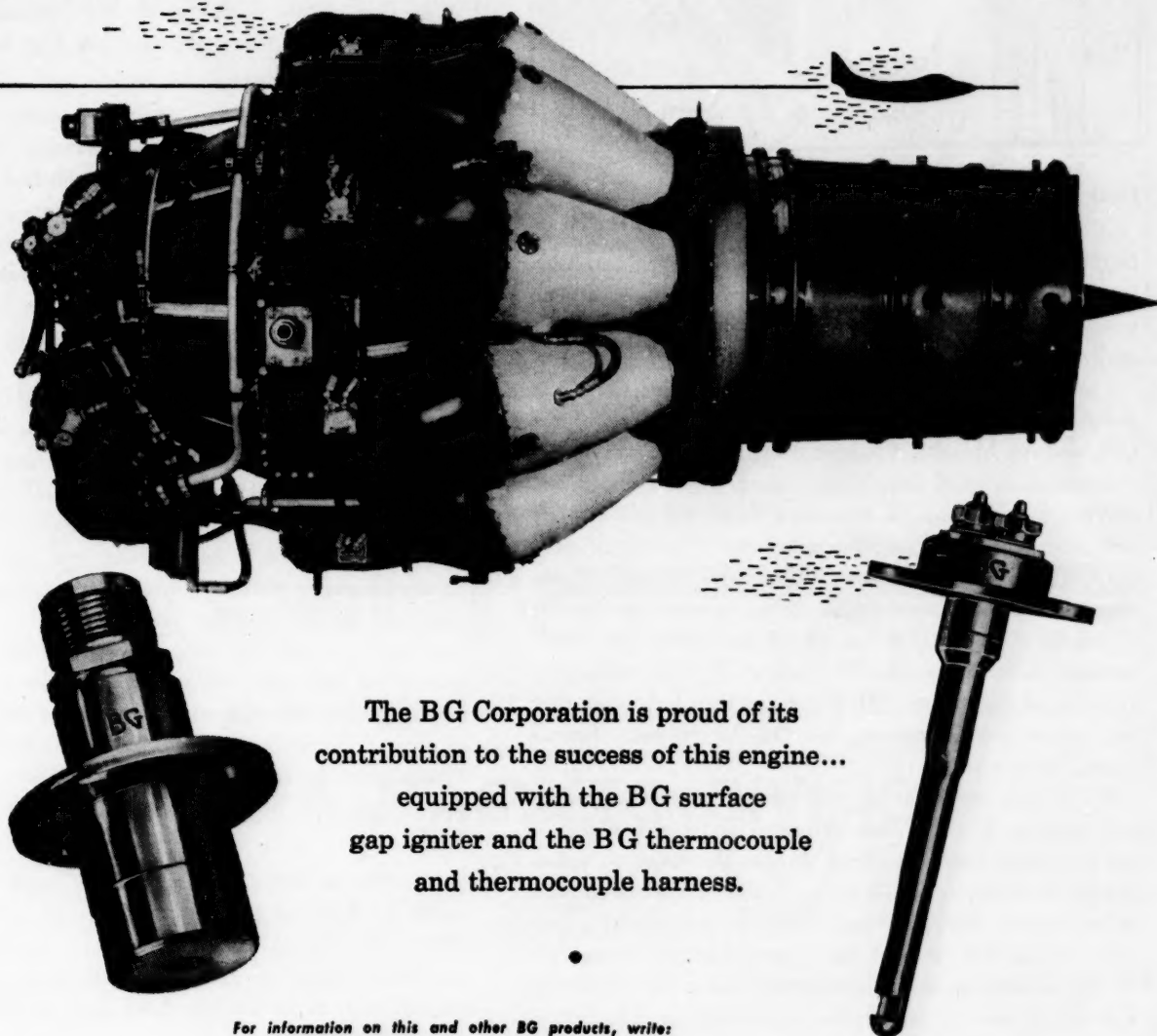
(Date)

Reviewed and forwarded to CMC this date

(Signature of Reviewing Officer)

THE PRATT & WHITNEY J-42 JET ENGINE

approved for 1000-hour overhaul...



The BG Corporation is proud of its contribution to the success of this engine...
equipped with the BG surface
gap igniter and the BG thermocouple
and thermocouple harness.

For information on this and other BG products, write:

THE BG CORPORATION
136 WEST 52nd STREET,
NEW YORK 19, N. Y.



Ignition harness
test sets



Gap setting
tools



After burner
plugs



Jet plugs



Terminal
sleeves



Spark plug
elbows



Thermocouple

Medals The Hard Way . . .



Dear Sir:

It was with a personal interest that I read Major "Fly B.Y. Night's" article concerning awards in your September issue. Let me assure the major it was quite unnecessary to assume a nom de plume in order to publicize his feelings on this subject, for he is not alone in his opinion.

I too have felt for a long time that the Marine Corps was going in the wrong direction, as far as the awarding of the DFC and Air Medal is concerned. The Marine Corps' highly respected tradition of being a well trained, well disciplined, and effective fighting force, is, in itself, a distinction that any one who wears the Corps' uniform can claim. There is no need to be-medal and be-ribbon one's self to impress others of these already universally known facts. In my opinion, the prestige of Marine aviators has in the eyes of our "gravel pounding" brothers, suffered considerably because of this extravagant awarding of decorations. How else can they feel, when they read of an aviator receiving his 23d Air Medal? Sounds absurd, doesn't it?

While with no intent to question the recipient's courage and devotion to duty when decorated under this system, I cannot refrain from remarking that, as the major so appropriately describes, this lavish use of awards completely nullifies, in my opinion, the honor and distinction that should accompany such awards, because the so-many-missions system fails to base its selection on the fundamental reason for establishing a system of awards; namely, for performance of duty beyond that normally required of any combatant. As combat aviators, our minimum duty is to attack the enemy and if possible destroy him. If, in performing this duty we display an exemplary courage worthy of acclaim, then and only then should we be rewarded.

The solution lies then, not in establishing a comparable award for the foot troopers, which would only compound the felony, but rather to return to the basic justification for any award. Then each and every one of us in the Marine Corps will be able to wear our medals and ribbons with a justifiable pride, each knowing that such awards were earned the hard way—the way the Marine Corps established its outstanding reputation.

H. B. PENNE,
LtCol, USMC

This is My Rifle . . .

Dear Sir:

In reading the *Message Center* in the September GAZETTE I disagreed with the editor's comment on Capt Valente's letter. I personally would have written months ago asking, "Why Don't We—go back to the old standard of issuing a man a rifle at Boot Camp and have him keep it with him the rest of his cruise?"

I believe that when the rifles were made organizational property that Marine Corps marksmanship went over the side. Take for example, a man goes through Boot Camp, makes expert rifleman at the range and then turns in his rifle and goes to a post for duty. At his new post he is issued a new rifle along with his other gear and spends the next year shining the stock and in general trying to get a rifle he is proud of. About the time he has it in good shape along comes a deal like Korea and he is shipped out with the rest of the men to the FMF. There, he is thrown a rebuilt rifle from the last war, spends 30 minutes on the range, more to see if the thing shoots rather than trying to hit anything, and 30 days later makes an assault landing in a shooting war. Up to now his training is perfect. The training laid down by HQMC has taught him to shoot, extended order, and the fire team, but his marksmanship stinks. When he sees a gook he just blasts away. If he had had that same rifle for the previous two years and had fired the range twice he would have had the sense to set his sights and try for a chest or head shot. As it is he doesn't know the zero so he tries to make up for lack of accuracy with volume and doesn't hit a thing. If during a night move he can't find his rifle, it doesn't mean a thing. He can just pick up another and it will probably be just as good.

The Marine Corps has always been famed for its marksmanship. I believe that the psychology of a man drawing a rifle in Boot Camp, and knowing that wherever he goes in the Marine Corps that rifle will be with him, would bring back the old pride in his weapon that I have not seen in the past 10 years.

PARKE L. CORY,
MSGT, USMC



TO MARINES EVERYWHERE WISHING YOU A MERRY CHRISTMAS

and a
SAFE AND SPEEDY RETURN

From The Folks in Quantico who
Ship Your Combat Masterpieces To You

Mrs. Anne Anderson, Chief Clerk
Mrs. Rose Lane Kincaid, Record Clerk
Mrs. Jeanette Irwin, Shipping Clerk

**SERVICE WIVES WITH YOUR INTERESTS
AT HEART!**

EVALUATORS LTD.
Quantico, Va.

George O. Van Orden,
President, BrigGen,
USMC, Ret'd

W. Hill Brown, Secretary
Attorney at Law

Marvin Driver, Director
Inspector Detroit Police,
Ret'd

Flora M. Van Orden, Vice
President, Sales Man-
ager

T. Frank Baughman,
Director, FBI, Ret'd

P. C. Roettinger, Director,
Major, USMCR



COMPLETE COVERAGE IMMEDIATE SAVINGS TO 30%

Complete, low cost auto-mobile insurance... Protection against loss from bodily injury and property damage liability... medical payments... accidental death... comprehensive personal liability... comprehensive fire and theft coverage. Available to preferred members of the Marine Corps.

Covers everything personal anywhere in the U.S. or abroad. This floater policy protects your household goods, clothing, uniforms, furniture, jewelry and valuable personal effects. Insures you against 14 named perils. Greatest coverage protection at lowest cost.

FILL OUT AND MAIL TODAY!

Name _____ Married _____ Single _____
Address _____ Description of car _____
Annual mileage _____
Age _____ Rank _____ Business use _____
Ages of drivers _____

★ ★ FEDERAL EMPLOYEES

214 BROADWAY



INSURANCE UNDERWRITERS ★

SAN ANTONIO, TEXAS

SCINTILLA MAGNETO DIVISION

of

Bendix Aviation Corporation

Manufacturers of

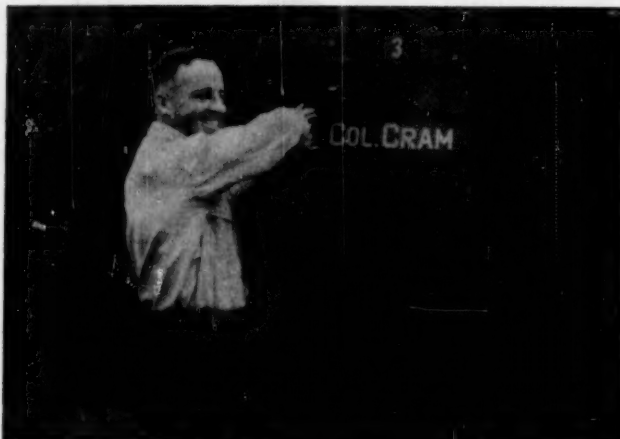
Ignition Systems for Jet, Turbine and Piston Power
Plants, Fuel Injection Equipment for Railway,
Marine and Industrial Diesel Engines, Electrical
Connectors, Ignition Analyzers, Moldings and
Special Components.

SCINTILLA MAGNETO DIVISION

Bendix Aviation Corporation

Sidney, N. Y.

Notes on Our Authors



Col Jack R. Cram and Col Charles L. Banks wrote *Win, Place, and Show for the Jets*, page 15, while they were in Korea. Both officers are now on duty at Quantico; Col Cram as Chief of the Air Section, Marine Corps Equipment Board, and Col Banks as G-4 Marine Corps Schools.

Col Cram graduated from Washington U. in 1929, went to Pensacola for flight training, and then served 10 years in the Reserve. He came on active duty in 1940, won the Navy Cross at Guadalcanal for a torpedo attack on a Jap transport while flying a PBY, and went on to see action at Saipan, Iwo Jima, Okinawa, and over Japan.

In addition to the Navy Cross, Col Cram wears three DFCs, 12 Air Medals, and the Navy Unit Commendation.

Col Banks has been in the Marine Corps since he graduated from VMI in 1936. During WW II he commanded the 1st Raider Bn, the 1st Bn, 4th Marines, the 1st Bn, 24th Marines, and served on the staff of FMF Pac as Asst. G-3.

From September 1949 to February 1950, Col Banks was CO of the 21st Marines in the Mediterranean. In the summer of 1950 he took the 1st Service Bn to Korea and received the Navy Cross for his outstanding leadership of that unit in the heavy fighting at Chosin Reservoir. Col Banks later became the G-4 of the 1st Mar Div.

Col Banks' decorations include the Navy Cross, the Silver Star, 2 Legions of Merit, the Air Medal, and the PUC.



Big Delta, page 42, is the product of LtCol Ronald R. Van Stockum's experiences at the 5th Officers' Arctic Indoctrination Course.

The colonel was born in England, entered the Marine Corps in 1937, and during WW II had two tours of sea duty, and served three years in the 3d Mar Div.

After the war LtCol Van Stockum was an Inspector-Instructor, attended the Senior Course, and at present is Operations and Planning Officer on the staff of Commander Amphibious Group 2. The colonel was awarded the Bronze Star for action at Bougainville in WW II.



Robert W. Daly (*Burnside's Amphibious Division*, page 30) teaches at the Naval Academy.

Mr. Daly graduated from Northwestern and earned a PhB and MA in History from Loyola. In 1941, he joined the Coast Guard as an ensign, taught at its academy, and did two years of sea duty during WW II.

In 1946, Mr. Daly completed his PhD work at Yale and Georgetown, and got his degree in 1949.

Mr. Daly has had two novels published (*Broad-sides*, and *Soldier of the Sea*), and his fiction has been in the *Saturday Evening Post*, *Argosy*, *Blue-book*, *Adventure*, and other publications.

MSgt William E. Willett, the author of *Items Peculiar* in the November GAZETTE, joined the Marine Corps in 1937, and during his career has had two tours of sea duty, duty in the Orient, and has served at many posts and stations in the States.

In July of 1950, MSgt Willett went to Korea as the sergeant major of the 1st Prov Mar Brig, and when the brigade disbanded, he requested assignment to the 1st Korean Marine Corps Regt. Then, on 18 Dec, he was re-assigned as section chief in the G-4 office, where he served until he was rotated back to the US.

In addition to his theater ribbons, MSgt Willett wears the Letter of Commendation with pendant.



WIN**PLACE**

and

SHOW

FOR THE JETS

The successes at Inchon, Seoul, Udam-ni, Hagaru-ri, and Koto-ri would not have been possible without close air support. This same support characterized many Marine campaigns in WW II, and then, as now, the work horse in close air support was the rugged Corsair fighter, the F4U. Aviation development, however, has always been characterized by rapid changes, and we are going through such a period now. But what about the jet? How will it fit into the close air support picture?



THE PILOT

By Col Jack R. Cram

I'M JUST A FIGHTER PILOT TRYING TO DO A JOB for that battalion commander and that Forward Air Controller on the ground. It's impossible for me to see the target detail as they do, but if they can put a smoke bomb near the target or give me a landmark I can do the job. Naturally, I'd like to make it as easy on myself as I can. In the early part of the Korean campaign I flew a Corsair. Then I graduated to jets—and I mean graduated, even if a lot of people argue about the jet's ability in close air support. I've found that most pilots who argue against the jets have never flown one; it's just like going from the Model-T to a Cadillac!

Well, to get back to my statement about doing things the easy way—the jet's the answer. It's smooth and quiet, like a Singer sewing machine, and just a lot easier for me to fly. There's no vibration from the propeller; no engine out in front. I can see the target all the way down in my dive without dipping the nose. When I'm in the dive there's no torque from the props or tendency to pull off the target. It's a smooth, steady approach, which makes bombing and strafing easier and more accurate.

Then, when hell breaks loose around the target, and the ack-ack starts playing tag, I get a break. I push a switch, dive brakes retract, and I jump

Cont'd p. 17

THE GROUND OFFICER

Col Charles L. Banks

I FEEL THAT CLOSE AIR SUPPORT IS LIKE NAVAL gunfire, artillery, and my own mortars—a requisite of any strong, coordinated attack. The more enemy I can "clobber" through my supporting arms, the better chance I have of taking my objective quickly and with a minimum of casualties. I know the conventional type aircraft can give the support I want, but in this Korean war I've seen jets perform equally well, with a few extra advantages thrown in. So, if I can have a few added features with the support I now receive from conventional aircraft, why *not* the jet?

Jets are more accurate in hitting the targets with bombs, napalm, and rockets. I'm told this is due to the fact that the pilot has a steadier base—but I'll let the pilot give you that dope. According to recent observations out here, jet bombing strikes have been every bit as accurate as the strikes made by conventional type aircraft; in strafing and napalm attacks they've generally been more effective. Accuracy is the pay-off with any weapon, and if we can get more accuracy in an air strike with a jet—well, that's for me.

A flight of Corsairs (or other propeller-driven aircraft) sounds like a bunch of hornets coming overhead. Unless you're deaf and have never drawn a hearing aid, there's usually time to take cover.

Cont'd p. 16



The Pilot, Cont'd

ahead about 75 knots. This change of pace is what gives me added security against a heavily defended target! Pilots who haven't flown a jet don't realize that, by using the dive brake, you can attack a target at the same speed a Corsair does. But once the bombs are away I've got an instantaneous flexibility in speed, by retracting the brake, that the Corsair doesn't have. As far as air combat goes, the "dog" has seen his last days. It's one fast pass—no acrobatics like the last war. Trying to outmaneuver a jet by slow turns is courting disaster.

On going to jets, after flying the Corsair, I found that instead of spending two hours on a mission my job is done in half the time. If you are stationed at an airfield 50 miles from the front, your jet takes eight minutes from the issuance of the attack order, while the F4U will take 22 minutes. A jet can be on station in 25 minutes, as compared to an hour and 20 minutes for the Corsair if the field is 150 miles to the rear. I like that, too—more sack time!

This feature affects the ground crews, too. They like it because it reduces the maintenance on the plane. The jet actually takes less maintenance than the Corsair, not only because of the shorter time of mission, but also because it has a less complex engine. Now I'm getting technical, so let's stop here. . .

Aside from milling around in the air longer, the F4U has only one other thing on the jet. The Corsair can get off the field with the same load in a shorter distance. This advantage is minimized by the fact that in Korea we've used alcohol injection as a means of getting a jet up to take-off speed in a shorter distance. Jato is also available and, actually, with the use of either we can operate from the same fields we used in WW II—6000-foot strips.

There's one thing I nearly forgot, and it's the most important of all. This war hasn't impressed me with it, because we've been so busy with close air support and armed recceys, so I nearly forgot to mention the jet's air defense capability. Aside from "MIG Alley," there's been no enemy air opposition, and, as a result, I haven't had an air-to-air encounter yet. But if the enemy throws jet fighters at us, I want to tangle with them in a jet. There's no prop job made that can whip a jet.

I'm convinced the jet can handle every mission the Marine Corps requires of the present Corsair, and in most cases do it a hell of a lot better. Don't take my word but ask any Marine pilot who's flown a jet how he thinks it will do in close air support. I'll bet you the best drink the Mark Hopkins can throw together that he'll bear me out. US MC



The Ground Officer, Cont'd

In fighting the Communists you'd better call on every trick of the trade, and the element of surprise certainly betters the chance to beat the hell out of 'em. From scientific facts, as well as your own personal experience, you know you can't hear a jet aircraft till it's over the target—and that's surprise! They're harder to see, due to their smaller silhouette and greater speed, and this assists in surprise, too.

In any attack, shock effect corresponds to the speed with which it's delivered. At best, as anyone knows, it's not good to be hit with bombs, rockets, napalm, or strafing. So—when you hit them hard before they know it, you have the same thing that makes "Sugar Ray" Robinson the best fighter in the world today: speed and impact.

The Forward Air Controller has a tough job under the best conditions. If he's doing his job he's taking, along with the rest of us, everything the enemy can throw. In addition, he always has the problem of communications—seldom a lead-pipe cinch. It's to our advantage to make his job easier; it's less difficult to put a jet on target than a propeller-type aircraft due to the speed, maneuverability, and steadiness. Therefore, if a jet makes his job less burdensome, I'm for it, because the combination of infantry commander, air controller, and pilot makes a hard team to beat when working smoothly.

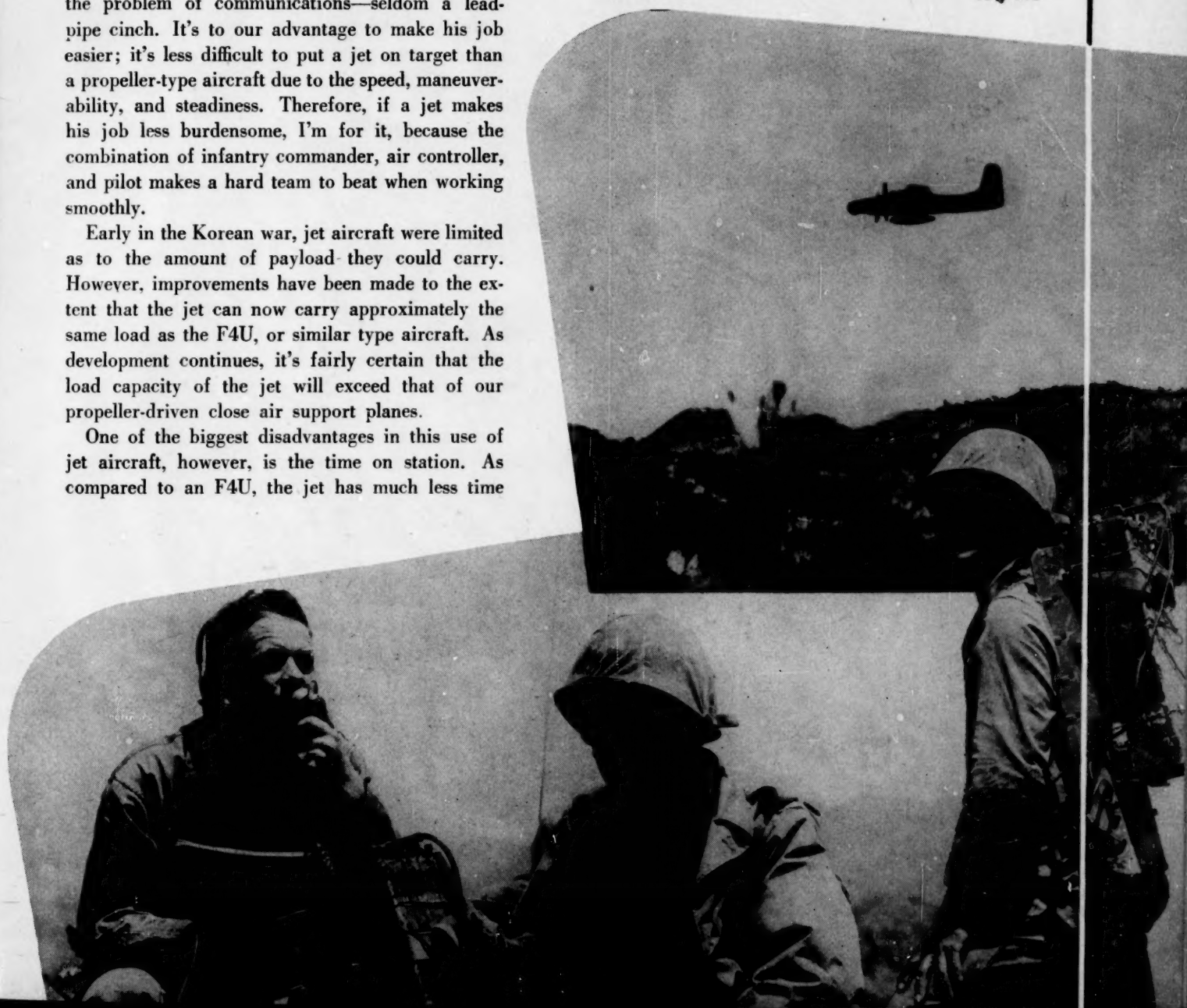
Early in the Korean war, jet aircraft were limited as to the amount of payload they could carry. However, improvements have been made to the extent that the jet can now carry approximately the same load as the F4U, or similar type aircraft. As development continues, it's fairly certain that the load capacity of the jet will exceed that of our propeller-driven close air support planes.

One of the biggest disadvantages in this use of jet aircraft, however, is the time on station. As compared to an F4U, the jet has much less time

on station, but the time required to fly from the field and return partly compensates for this disadvantage. The jet does not require any warm up time, and also, due to its greater speed, it can arrive where it's going in practically no time. But—the reduced time on station is a disadvantage, and the means to lick this is not foreseeable in the immediate future.

In case you haven't been convinced yet, here's what I consider the greatest advantage in the jet's use in close air support: Its ability to carry out close air support missions, and still be on even terms with enemy fighter planes. The F4U type aircraft no longer can compete with a jet fighter when the enemy wants control of the air. We've enjoyed air superiority in Korea; nevertheless, the infantryman is very conscious of this. If he knows that the same plane giving him air support can also tangle with the MIGs on equal terms, his morale will increase in proportion to his confidence.

USMC



THE HUNGARIAN RECORD Amphibious Landing Rev

Sand

U.S.

THE NIGHT OF 11 DECEMBER 1950 WAS A MEMORABLE one for the Leathernecks in the warming tents at Hamhung. For the first time in two weeks they had an opportunity to renew their acquaintance with hot food, sleep, security, and a much-needed shave.

These were the men of the 1st Mar Div who had been making front-page headlines in the world press. Since 27 November, when the great Chinese Communist counteroffensive exploded in the X Corps zone, they had fought their way for 56 miles through overwhelming enemy forces.

But the end was not yet in sight. In spite of recent sub-zero temperatures, it might figuratively have been said that the Marines had jumped from the frying pan into the fire. Hamhung could offer them only a breathing spell. The entire Chosin Reservoir breakout, in fact, might prove to be a prelude to the test awaiting in the Hungnam port area.

The new overall problem was staggering. CinCFE orders called for the immediate evacuation and redeployment of the 1st Mar Div and the other four divisions of X Corps. This meant that more than 100,000 troops must be assembled and embarked under the noses of the Chinese forces. Thousands of vehicles and mountains of equipment must be outloaded from a small Korean port, and the difficulties were compounded by a host of friendly Korean civilian refugees who could scarcely be abandoned to the tender mercies of the Communists.

No such large-scale movement of combined Army, Navy, Air Force, and Marine elements had been contemplated since Okinawa. The time was so short, moreover, that action could not always wait on detailed planning and organization. In any event the job had to be done.

Even without the danger of enemy interference, the swift-paced Hungnam evacuation would have caused many a headache as an administrative problem. But it could not be supposed, of course, that the enemy would neglect any military advantage. On the contrary, 1st Mar Div intelligence warned on 10 December that "sizeable" Chinese forces were gathering along the former MSR in the Marine rear. Although 1st Mar Div ground and air forces had inflicted an estimated 37,500 casualties in the past two weeks, the CCF invaders seemed to have endless reserves. Marine air observation revealed a "continued movement southward to reinforce, with the presence of a considerable number of artillery pieces reported for the first time."

Despite the punishment taken by the enemy, his combat efficiency and morale at the finish of the Marine breakout were rated by Division G-2 as "good to excellent." CCF capabilities were believed to include two courses of action which might affect the Hungnam evacuation. One was the mounting of "large-scale, coordinated attacks against the Hamhung-Hungnam area at

In cooperation with the Historical Division, Headquarters, U. S. Marine Corps, the GAZETTE herewith presents another in a series of official accounts dealing with Marine operations in Korea. Prepared by writers and researchers of the Historical Division, these articles are based on available records and reports from units in Korea. Also to be treated in this series:

Anti-Guerrilla Operations in South Korea The Drive to the 38th Parallel

Publication is scheduled for consecutive monthly issues.

Admittedly it is too soon to write a definitive history of Marine fighting in Korea. Not only are enemy sources lacking, but even Marine and Army records are still incomplete. Articles of the length to be used in the GAZETTE, moreover, do not allow space for more than an outline of operations which will ultimately be given the detailed treatment of a monograph.

But timeliness is also an end to be sought, and these preliminary narratives are based on Marine and Army reports received up to this time. These articles are presented in the hope that GAZETTE readers will feel free to add to the incomplete record. This is an invitation, therefore, for you to supplement the existing record. Send your comments and criticisms, as well as any other information you can make available, to the Historical Division, Headquarters, U. S. Marine Corps, Washington 25, D. C.

any time with an estimated six to eight CCF divisions supported by an undetermined amount of artillery and armor." The other, which held even more serious implications, was that the Communists might launch "large-scale air attacks."

Either of these threats was disturbing at a time when the roads leading to Hungnam would soon be choked with troops and vehicles. So far the Chinese had not challenged the United Nations air supremacy, but it was conceivable that this might be the next great surprise of an unpredictable conflict. After all, there was no logical reason why Soviet planes should not be made available to the enemy as well as Soviet artillery and tanks.

Nor could the morale factor be overlooked. Today, glancing back with the infallible wisdom of hindsight, it is hard to recapture the atmosphere of shock and confusion which then prevailed. In a few incredible November days a Chinese Communist counterstroke had wrecked Gen Douglas A. MacArthur's "end the war" offensive. The U. S. Eighth Army was hurled back in Northwest Korea after a ROK corps disintegrated on the right flank. Then the enemy struck his next surprise blow in the X Corps zone, where five divisions were strung out all the way from Wonsan to the Manchurian border.

Eight CCF divisions fell upon the 1st Mar Div, spearheading the X Corps advance in the Chosin Reservoir area, and another UN disaster appeared to be in the making.¹ Stateside newspaper readers watched the head-

¹The 1st Mar Div landing at Wonsan and operations leading up to the Chosin Reservoir breakout were described in the October and November issues of the MARINE CORPS GAZETTE.

by Lynn Montross

lines in dread of the Marines being trapped and destroyed. But the Marines came out fighting. The Marines snatched the initiative from a numerically superior foe and cut a path to the sea.

Students of history were reminded of Xenophon and his Ten Thousand fighting their way to another sea through another host of Orientals.² Twenty-four centuries had gone by since then, and weapons had progressed from catapults to howitzers. Yet the principles of sound warfare had changed but little, and the Marines were not unworthy of the comparison. The Marines, too, had both command and leadership. The Marines showed a classical precision in making the most of their training and weapons. The Marines were armed with the confidence which comes from the victories of method and system over locust tactics.

It was not the first time that the 1st Mar Div had restored American public faith at a moment of doubt and bewilderment. In 1942 the outfit had the distinction of deflating a Japanese superman legend which had been blown up since Pearl Harbor. For the Leathernecks slugged it out the hard way on Guadalcanal to crush a foe with a reputation for invincibility in jungle warfare.

☛ HISTORY REPEATED ITSELF eight years later when the 1st Mar Div stormed ashore at Inchon on 15 September 1950 to puncture a legend of North Korean prowess. And on 11 December, when the Anabasis of the Leathernecks ended in the warming tents of Hamhung, the 1st Mar Div had demonstrated that the military coolies of Red China could be repeatedly beaten. Stateside radio commentators and editorial writers explained the breakout in terms of a "miracle," but the Marines knew better. The Marines knew that they had won over Communist bulk and fanaticism with nothing more miraculous than good home-made "war according to the book."

There was the danger afterwards that American public opinion might swing back to overconfidence. But before this reaction had time to develop, another crisis threatened in Northeast Korea when X Corps was ordered to

²For the enlightenment of readers who may have forgotten their classics, Xenophon commanded a force of Greek mercenaries in a Persian civil war of the 4th Century, B. C. The defeat of their employers leaving them stranded in hostile territory, the immortal Ten Thousand fought their way through swarming Asiatic forces to safety. Xenophon recorded the history of this breakout in his *Anabasis*.

begin the Hungnam evacuation.

The merest layman might have perceived that any such operation would take a great deal of doing. It was a tribute to the Navy, however, that the prompt accomplishment of its mission was assumed as a matter of course by officers of other branches.

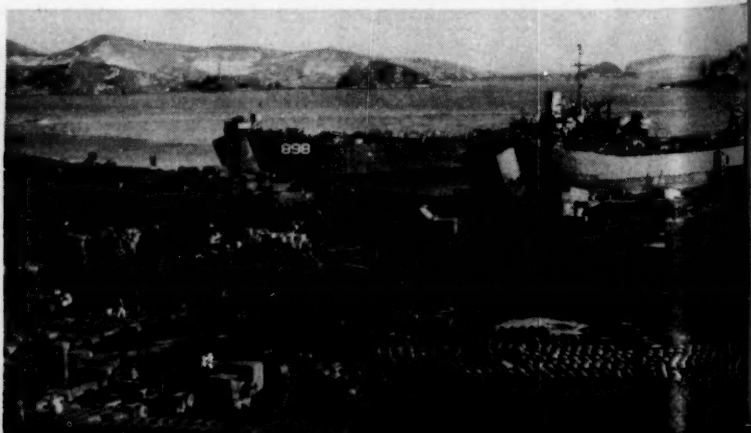
☛ IN KEEPING WITH THIS TRADITION, the Navy had already been planning and preparing on a basis of possibilities. RAdm James H. Doyle, commanding Task Force 90, was alerted for this purpose at the early date of 28 November by VAdm C. Turner Joy, ComNavFE. The Chinese counteroffensive was then only three days old, but CTF-90 commenced planning for the redeployment of ground forces by water in Korea, either as an administrative operation or an emergency measure. Units of TF-90 were issued Operations Order 19-50, providing for half of the amphibious force to operate on the east coast of Korea under Adm Doyle, while the other half had responsibility for the west coast under RAdm Lyman A. Thackrey, CTG-90.1. Overall control of all redeployment operations was to be exercised by CTF-90.

On 29 November ComNavFE advised Adm Doyle that the military outlook in Korea made it desirable for all ships of TF-90 to be on six hours' notice, either in Korean or Japanese waters. Most of the amphibious units were then in Japan for upkeep and replenishment, and Sasebo was designated as their port of assembly.

The following day, as the military situation continued to deteriorate, all units of TF-90 were directed to deploy immediately to Korea. There was a question as to which side of the peninsula would be indicated, but the plight of the Eighth Army appeared to be the most critical. Accordingly it was ordered that two thirds of the amphibious units and half of the transports be deployed to the west coast.

Preparations were not neglected meanwhile on the other coast. The anchorage area was enlarged in the harbor at Hungnam, and minesweeping operations were initiated to provide channels for gunfire support ships.

BELOW: Loading 1st Mar Div equipment aboard ships during evacuation of Hungnam. BELOW LEFT: Engineers blow railroad bridge to slow CCF forces in Hungnam area.



Not until 8 December was it finally determined that the emphasis would be on Hungnam and other east coast ports for a water lift of X Corps. Navy planning and preparations had been going ahead at full blast for a week, therefore, when Adm Joy summoned a high-level conference on this same day. VAdm Arthur D. Struble, Com7thFlt, LtGen Lemuel C. Shepherd, CG FMFPAC, and Adm Doyle met with ComNavFE aboard the USS *Mt. McKinley*, and the following day the order to re-deploy X Corps to the Pusan-Pohan area was received.

CTF-90 was assigned the missions of conducting re-deployment operations in east coast embarkation ports, of controlling all air and naval gunfire support, of protecting shipping en route to debarkation ports, and of coordinating withdrawal movements with CG X Corps.

☛ DURING THIS PRELUDE of Navy planning, Army and Marine elements in Northeast Korea were still in process of extricating themselves from the deadly embrace of the CCF counteroffensive. Prior to 9 December, it must be remembered, no orders for a redeployment by sea had been received by MajGen Edward S. Almond, CG X Corps. He was merely directed by CinCFE to assemble his units and prepare to defend the Hungnam base of operations. X Corps also had the responsibility of providing logistical support, largely in the form of air cargo and paradrops, for the 1st Mar Div in its breakout from the Chosin Reservoir area.

The Marines, as it proved, did more than save themselves from destruction. They kept the enemy so well occupied in the process that the other four widely dispersed divisions of X Corps were able to pull back with a minimum of enemy interference.

Three battalions of the 7th Inf Div had been badly cut up by the Chinese east of the Reservoir, and the survivors were placed under the operational control of MajGen Oliver P. Smith, CG 1st Mar Div. The remaining units made their way back to Hamhung without serious fighting, though the advanced positions extended nearly to the Manchurian border.

The 3d Inf Div and attached ROK Marines had even less difficulty in their withdrawal to the Wonsan area

BELOW: LSTs stand by to take on fuel drums and other supplies during evacuation. BELOW RIGHT: Thousands of Korean refugees, who had followed the Marines out of the Reservoir area, added to the embarkation problem.

for a move by land and sea to Hamhung. A task force from this division relieved a Marine battalion at Chinhung-ni so that it could keep the route open for the main Marine column during the last stages of the breakout.

This left only the two divisions of I ROK Corps, which had penetrated along the littoral within 38 miles of Manchuria. Three regiments were designated to proceed by land and sea to Hamhung, while the other three regiments withdrew to Songjin (Map 1) for a lift by sea to the Samchok area.

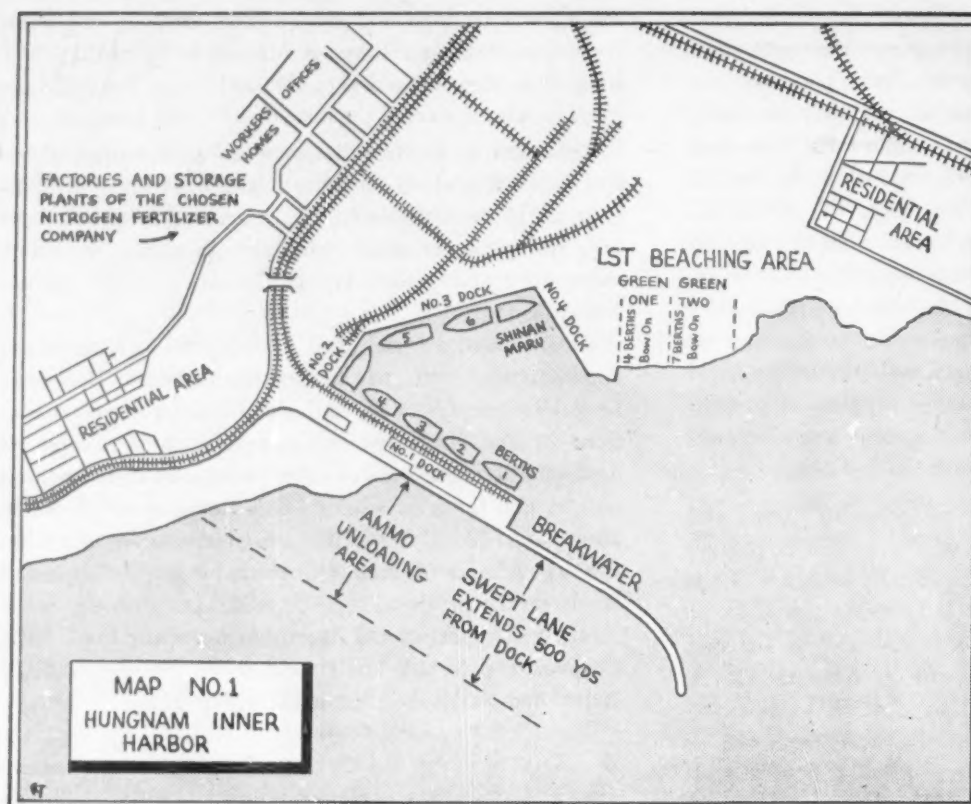
Intentions of a withdrawal from Northeast Korea were communicated indirectly to Gen Almond on 6 December by preliminary NAVFE and Far East Air Force operations orders directing the support of a X Corps re-deployment. These were of value because of their warning nature, and three days later CG X Corps received orders from CinCFE which specified his missions for the withdrawal. After a lift from Hungnam by sea, X Corps was to assemble in the Pusan-Usan-Masan area of South Korea and report to CG Eighth Army. Only the I ROK Corps was excepted, and it was to be released to ROK Army upon arrival at Samchok (Map 1).

☛ THE REASONS for the redeployment were apparent after a glance at the current military situation. Although the CCF counteroffensive had failed to destroy any large units of X Corps, the enemy had succeeded in overrunning Northeast Korea. Northwest Korea had meanwhile been evacuated by the retreating Eighth Army, which was regrouping far southward near the 38th parallel. This added to the desirability of pulling out X Corps while it was relatively intact and coordinating its efforts with those of the Eighth Army. Northeast Korea, in short, was not worth the fight required to hold it.

On 11 December, as soon as possible after issuing his withdrawal order, Gen Douglas A. MacArthur conferred with CG X Corps at Yonpo Airfield, four miles from Hungnam. Gen Almond submitted his plans for defense of a Hungnam perimeter and set a date of 27 December for his divisions to pass to the control of the Eighth Army in South Korea.

This meant that scarcely two weeks were allotted for evacuating 100,000 troops and their equipment in the dead winter from beaches within striking distance of a formidable enemy.





At the outset it had been proposed by X Corps staff officers to defend a perimeter with a 15-mile radius at Hungnam and assign the 1st Mar Div to the most dangerous sector, including Yonpo Airfield. This plan was abandoned on the grounds that the Marines were the most battleworn of X Corps troops. Later the discussions narrowed down to a choice between two courses of action. The first was to hold a smaller perimeter and withdraw all units simultaneously from pie-shaped sectors until a single regiment was left with responsibility for defense. RCT-1, as the least battered of the three Marine regiments, was suggested for this duty. The other course was for major units to withdraw by side-slipping until one division was left with a mission of protecting a perimeter gradually contracted from its original seven-mile radius.

THE LATTER ALTERNATIVE was adopted. A X Corps operations order provided for the ROK regiments and 1st Mar Div to embark, followed in order by the 7th and 3d Inf Divs. Thus the 3d would have a final responsibility for defense which increased daily as the operation proceeded.

Marines had been well represented on the X Corps staff ever since the planning for the Inchon-Seoul operation.³ Col Edward S. Forney served as deputy chief of staff, and other positions were filled by officers of Mobile Training Group Able, which reached Japan before the outbreak of Korean hostilities to instruct Army units

³The story of the Inchon landing and capture of Seoul was told in the July-August 1950 issue of the GAZETTE.

in Marine amphibious techniques.

Marine officers, because of their specialized training in ship-to-shore attacks, were especially well qualified to direct a Hungnam operation which has been called an "amphibious landing in reverse." Three of the five sections were headed by Marines, therefore, when X Corps set up a control organization for the evacuation.

COL FORNEY WAS appointed by Gen Almond as control officer responsible for the continuous operation of the Hungnam port, for the withdrawal to staging areas of designated units, for the loading of these troops on assigned shipping, for the evacuation of Korean civilian refugees, and for the re-

moval of equipment. Maj. Bernard B. Shutt took charge of an operation section composed of representatives of all the major units of X Corps, including the 1st MAW. The loading section was headed by Maj Charles P. Weiland, and the Navy liaison section by another Marine officer, Maj Jack R. Munday. Army officers ably directed the movement and rations sections.

The X Corps Fire Support Coordination Center was a Navy and Marine organization. LtCol Jack Tabor, USMC, served as assistant coordinator, and LtCol Thomas J. Ahern of the 1st MAW headed the air section. Fifteen of the communicators were Marine enlisted men.

Other Marines had already taken a leading part in a rehearsal for the main show—the evacuation of Wonsan by 3d Inf Div troops sent to Hungnam and ROK elements sailing for Samchok. From 2 to 10 December the 1st Shore Party Bn of the 1st Mar Div had a mission of outloading while sharing the defense of the harbor area with a 3d Inf Div battalion. These Leathernecks not only operated the dock facilities to capacity but also manned the central sector of the inner defense perimeter.

Another 1st Mar Div outfit, Co A of the 1st Amphibian Truck Bn, speeded the operation by making hundreds of round trips from docks to ships with DUKWs.

On 10 December the evacuation of Wonsan was concluded after the outloading of 3,834 troops, 7,009 Korean civilians, 1,146 vehicles, and 10,013 bulk tons of cargo. Hungnam was the destination of the SP Bn, less a detachment which sailed for Pusan, along with the DUKWs,



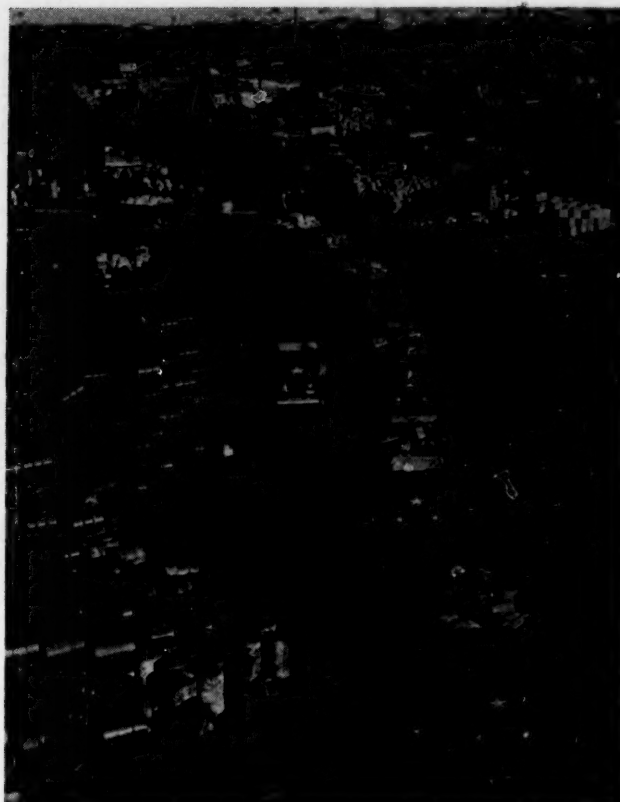
to assume responsibility for the unloading of the 1st Mar Div personnel and equipment when they arrived.

The Wonsan evacuation was instructive as a small-scale preview of the tasks awaiting at Hungnam. And without taking credit away from Army and Marine efforts, Wonsan was largely a Navy show. Effective gunfire from support ships kept North Korean forces at such a respectful distance that the perimeter defenses were never seriously threatened. Covering missions continued to be fired until the last friendly troops withdrew, and operations were completed without the necessity of destroying UN supplies and equipment.

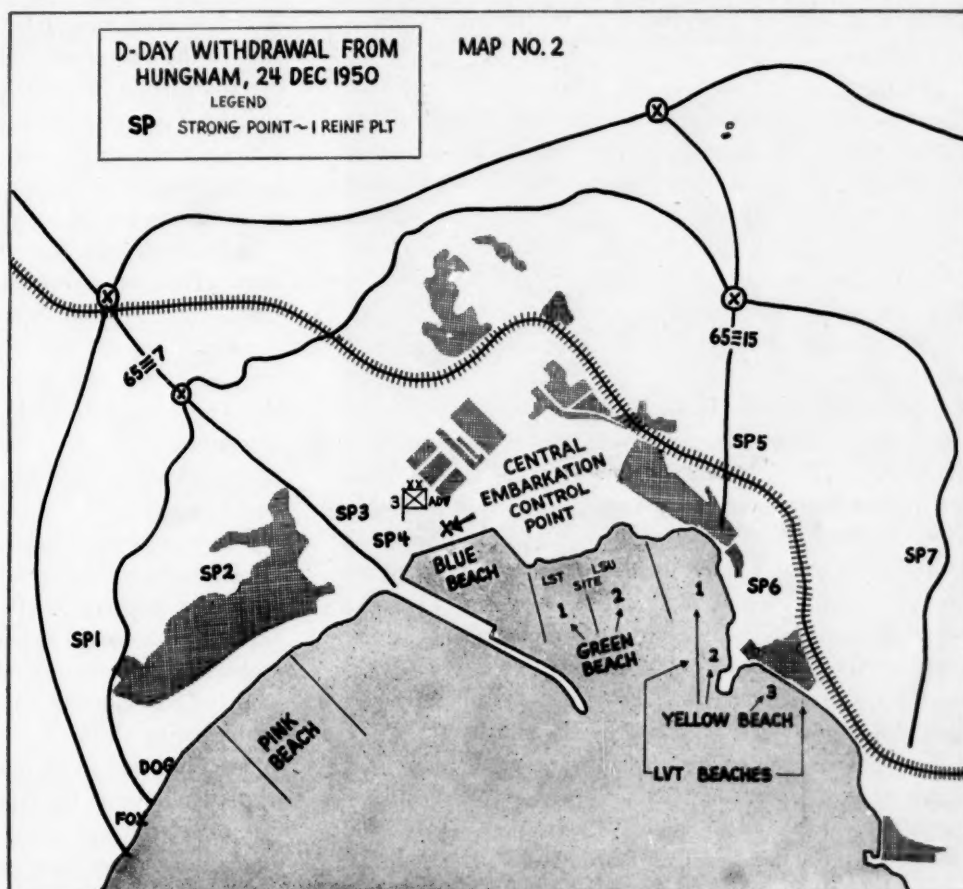
Preparations at Hungnam were just getting into full stride as the Wonsan evacuation ended. CTF-90 assumed responsibility for all naval functions on 10 December after approving loading plans made at a conference held by Navy officers with representatives of X Corps. Meanwhile the harbor was cleared for action when loaded and partially loaded ships with cargo not needed by X Corps were sent to Pusan with orders to unload and return immediately.

CTF-90 exercised control of the Hungnam operations through a task organization set up after a study of harbor facilities and loading problems. This organization consisted of a chain of such control stations as CTF-90 operations, control vessel, beachmaster, port director, and embarkation control liaison officer. Communication was maintained by means of primary and secondary VHF voice radio circuits, so that officers could speed all operations by speaking directly to one another.

Col Forney had meanwhile established the headquarters of the X Corps control organization in a shed of the dock area. Availability of units and equipment was decided by the operation section in accordance with tactical and logistical requirements. Next, it became the responsibility of the Navy liaison section to supply the link between X Corps and TF-90 for the management of shipping within the harbor. When a unit had been alerted as to embarkation, the loading section made its preparations, the movement section directed traffic to the assigned staging area, and the rations section provided



Loaded trucks line up to go aboard ship. Tent city in background is for troops awaiting their turn to embark.





At Hungnam the whole outlook was much brighter.

for the wants of the troops awaiting their turn in the tent city which sprang up behind the dock area.

Dockside operations were the responsibility of the 2d Engineer Special Brigade of X Corps, reinforced by the SP troops of the 1st Mar Div who had arrived from Wonsan. These duties included the providing of camp facilities as well as supervision of the technical details of loading.

The naval control stations got into action the moment that a ship entered the outer harbor. CTF-90 operations advised the port director as to the berth to be occupied, and the ship was ordered to proceed from anchorage and wait near the breakwater for a pilot. The pilot docked the ship, after its berth became empty, with the assistance of tugs. Then the various Navy officers and X Corps sections exercised their functions in turn until the loaded ship was assigned a "chop time" for being moved out from the dock.

As compared to Inchon, with an average spring tide range of 27 feet, Hungnam was a good harbor in spite of its small size. The tidal range was less than a foot, but berths for loading only seven ships were available at the docks (Map 1). Navy officers raised the ante to 11, however, by double-banking four additional ships to be loaded from the outboard side. In addition, 11 LSTs could be handled simultaneously—seven at Beach Green One, and the others at Beach Green Two. Or as many as three LSTs could be beached bow-on at Dock Four when all space in the Green Beach area was filled.

Navy officers may have had their sleep disturbed by nightmares of a mechanical breakdown at a critical moment. Only two 390-ton diesel electric tugs were available, and their engines had more than 5,000 running hours since the last overhaul. Not only were spare parts

lacking, but inexperienced personnel had to be hastily trained to provide extra crews.

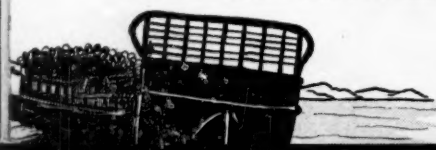
Here was perhaps the most fragile link in the whole complex chain of operations, since these radio-equipped tugs were vitally needed for handling ships in winter winds up to 40 knots. But the link miraculously held throughout the evacuation. Neither tug broke down for more than three hours in all, and repairs were made with the materials at hand.

The human machinery of the operation was also put to a strain as an inevitable consequence of haste in planning and preparations. Many of the Army officers were inexperienced in amphibious techniques, and it is understandable that some of their estimates went wide of the mark. One of these slips occurred when only an AKA, an APA, and a Victory-type ship were provided at first by CTF-90 for the sea lift of the three ROK regiments from Hungnam to Samchok. This allowance was based on initial X Corps estimates of 12,000 personnel and "a few" vehicles. Army totals had to be revised upward to 25,000 troops and civilians plus 700 vehicles, but the Navy task organization was equal to the test. Difficult as it was to find the shipping at this stage, CTF-90 committed an additional APA, two more merchantmen and an LST with the seeming ease of a magician producing rabbits from a hat.

RAILROAD TRANSPORTATION also played an important part in the operation. With the aid of Korean laborers, the route from Wonsan to Hungnam had been opened, and the X Corps control organization assembled between 400 and 500 freight cars. Some 8,900 tons of Class V ammunition were among the supplies moved to the port by rail to be loaded on ships.

A third element was utilized in the form of air transport. Thus an evacuation within an evacuation took place when 112 Air Force planes and 10 Marine planes completed the air lift of 3,600 men, 196 vehicles, 1,300 tons of cargo, and hundreds of Korean refugees from the Yonpo Airfield to Hungnam. The "flying boxcars" sometimes took off at three-minute intervals in spite of adverse weather, and the field was utilized as long as it could be defended within the receding perimeter.

The evacuation of the 1st Mar Div began as soon as the first elements reached Hamhung after the breakout from the Reservoir. It could not be said that these Leathernecks lacked experience, for this was their fourth embarkation in a period of five months. Units were assigned vehicle and cargo assembly areas in Division Embarkation Order No. 3-50, published on 11 December, and staging began at once. Owing to the impossibility of predetermining the type of shipping or time of arrival, this order did not err on the side of rigidity. Marine amphibious experience paid off, however, when embarkation officers loaded by sight, planning their loads with-



out the aid of stowage diagrams.

Such was the speed of the outloading that most of the troops proceeded directly from bivouac areas to beaches, without pausing in the tent city behind the two Green beaches. Drivers were embarked with their vehicles, so that cargo space had to be used to billet troops on commercial ships. Between 4,500 and 5,500 men were embarked on each of the three APs. Seven commercial cargo vessels, 13 LSTs, 3 LSDs, an APA, and an AKA were also assigned.

The outloading of the division was completed at 1500 on 15 December. And as the Marines sailed for Pusan, the embarkation of the 7th Inf Div began.

Problems of defense took on an increasing importance, of course, as the perimeter shrank. X Corps intelligence reports considered it possible that 11 CCF divisions and two NK divisions might be moved within striking distance. Most of these forces did not materialize, but the enemy's reluctance may be charged to the warm reception prepared for him by X Corps and TF-90.

THROUGHOUT the evacuation the ground forces of the two Army divisions had only patrol actions, and remarkably few battle casualties were incurred. Again the Navy had the principal part, and the story of the Hungnam defense is told by the total of nearly 34,000 projectiles and 12,800 rockets fired by support ships. About 500 more 8-inch rounds and 12,800 more 5-inch rounds were expended at Hungnam than during the Inchon amphibious assault.

Army artillery supplied most of the interdiction fires at the outset, with the Navy giving deep support. But as the perimeter narrowed to the Hungnam area after the evacuation of Hamhung and Yonpo, the two cruisers, seven destroyers, and three rocket-firing craft covered the whole front from their assigned positions in mine-swept lanes. At the climax the battleship *Missouri* contributed to the final barrage with 162 of her 16-inch projectiles.

Vigorous air support by Navy, Air Force, and Marine planes also did much to discourage any hostile intentions the enemy may have had. On 11 December the responsibility for air defense passed afloat, and TAC Squadron One of TF-90 assumed control of all aircraft in the objective area, including TF-77, 1st MAW, and 5th AF units. Marine planes continued to operate until the 13th from Yonpo, when all shore-based air units were evacuated. Four days later, Marine TAC Squadron Two established a secondary TADC on board an LST.

Winter weather did not prevent the fliers from taking off the icy runways of the five carriers for reconnaissance, interdiction strikes, and close support missions beyond the bomb line. As the perimeter contracted, the air support units redoubled their efforts to detect and break up CCF concentrations threatening the beachhead.

Altogether, it was an imposing armada that Adm Doyle directed from the USS *Mt. McKinley* when the 7th Inf Div loaded out from 15 to 20 December. On the 19th, CG 3d Inf Div assumed responsibility for the defense of Hungnam as Gen Almond and his staff moved aboard the flagship. The main line was a perimeter about 5,000 yards from the center of the port area, with an outpost line extending about 1,000 yards beyond.

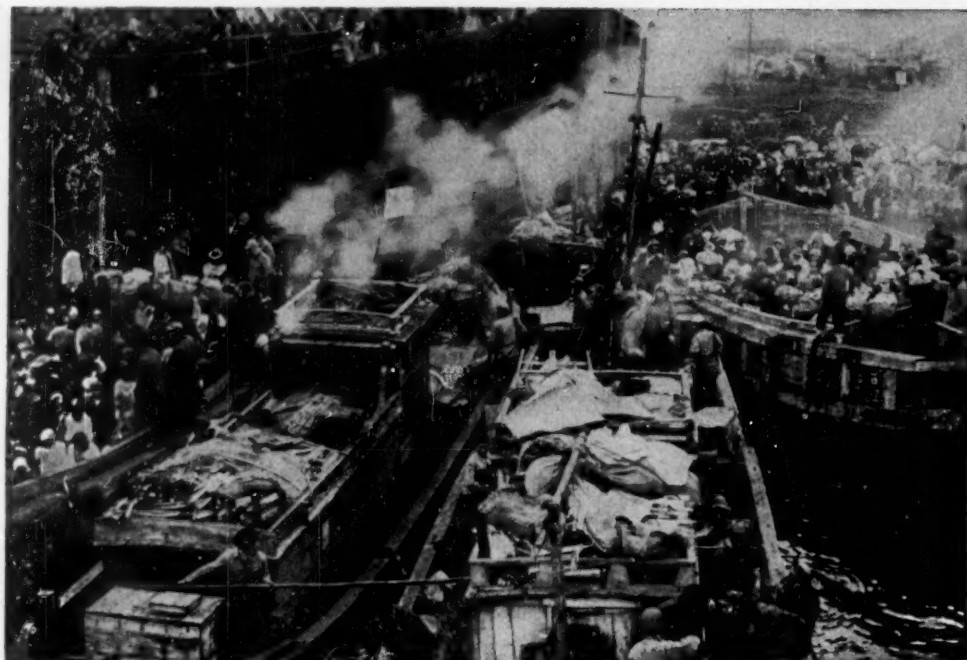
Embarkation problems at this stage were multiplied by the pitiful horde of Korean refugees. Their mass flight from Communist vengeance had begun during the 1st Mar Div breakout, when thousands of old men, women, and children followed the Leathernecks. Medical personnel brought several Korean babies into an unfriendly world on sub-zero nights, and the column of fugitives swelled until 50,000 tried to take the last train out of Hamhung.

Again CTF-90 somehow managed to find the shipping after being informed that an original Army estimate of 25,000 refugees had been nearly quadrupled. But sardines were never packed as intimately as the first installment of 50,000 Koreans jammed into three Victory ships and two LSTs. It became standard practice to embark at least 5,000 on an LST, not counting children in arms, and one ship set a record with 12,000.

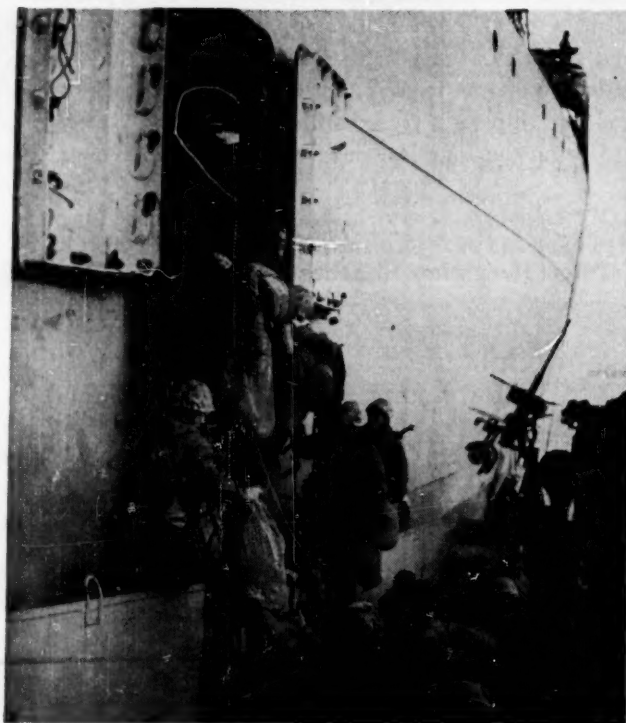
During the four last days of the evacuation only the

TOP: Engineers destroy bridge across Songchon River at Hamhung and push locomotive into gap. **BOTTOM:** Koreans from Hungnam wait patiently to go aboard ROK LST.





LEFT: Korean fishing boats bring refugees to Hungnam for transfer to LSTs and evacuation to Pusan. **BELOW:** Men of the 5th Marines board transport from LCM which brought them out from Hungnam beach.



three infantry regiments of the 3d Inf Div, plus artillery units, were left as a covering force. So far the Army scheme of maneuver had been carried out with precision in spite of the relative tactical inexperience of the units employed. Both the 3d and 7th Divs had been hastily brought up to combat strength just before the Inchon-Seoul operation. Some of the battalions were mere cadres at the outset, their ranks being filled with South Korean recruits as well as green Army replacements. Nevertheless, the two outfits gave a good account of themselves at Hungnam, even though their training had been largely

received in the field during the past two months.

The shore-to-ship movements of the final four days coordinated by TF-90 with the Army scheme of maneuver, was an "assault in reverse" which departed in few respects from the principles of a conventional ship-to-shore operation. It remained at this climax to embark the 3d Inf Div units, and the planning contemplated a movement in four phases, leading up to D-day on 24 December. The first two phases included the loading of bulk cargo, equipment, and service troops. Phase three consisted of the embarkation of combat forces less the final covering forces, and the fourth phase called for the withdrawal of these last platoons.

Seven landing sites were employed (Map 2). From left to right they were designated as Pink Beach, Blue Beach, Green One and Two Beaches, and Yellow One, Two, and Three Beaches. The 7th RCT, holding the left sector of the final perimeter, was to embark from Pink Beach. Blue and Green One Beaches were assigned to the 65th RCT in the center, while the 15th RCT had Green Two and the three Yellow beaches. The final stages of the evacuation were to be protected by covering forces which would embark from Pink and Yellow Beaches.

Loading operations continued through the 23d as the Engineer Special Brigade kept 5,000 Korean laborers at work. At the finish a total of 105,000 US and ROK military personnel had been embarked and 91,000 civilian refugees. The statistics of supplies and equipment were equally impressive—17,500 vehicles and 350,000 measurement tons of cargo loaded out of Hungnam on 6 APA, 6 AKA, 12 TAP, 76 time-charter ships, 81 LST, and 11 LSD loads.

The ground situation remained quiet, but at dark on the 23d the naval gunfire was stepped up to three times

its previous volume as the *Missouri* arrived on station for barrage missions. H-hour had been set at 1100 the next morning, and seven LSTs were beached at 0800 to receive 3d Inf Div personnel. Soon the three regiments were reduced to as many battalions which acted as covering forces while the other troops fell back to assigned beaches. All withdrawals were conducted methodically along specified routes by units carrying marking panels. Then the covering forces themselves pulled out at H-plus-90, leaving only seven reinforced platoons manning a chain of strong points. And the operation drew to a close when these platoons boarded an LST after a search for stragglers. Air and naval gunfire support had made it an uneventful climax except for the accidental explosion of an Army munitions dump on Pink Beach, resulting in two killed and 21 wounded.

ALTHOUGH MOST OF THE LEATHERNECKS had been recuperating for a week in the Masan area, the 1st Mar Div was represented at the finish. The 1st ANGLICO (air and naval gunfire liaison specialists) had controlled the fire of several destroyers. The SP Bn (less the detachment sent to Pusan) had aided in operating the beaches, and one and a half companies of the 1st Amphibian Tractor Bn had taken part throughout. Some of these Marines remained on duty until 24 December.

Among the few supplies which had to be left behind were 400 tons of frozen dynamite and 500 thousand-pound bombs. But even these munitions were not wasted, since they added to the emphasis of the final demolitions.

All beaches were clear by 1436 on the 24th, and 20 minutes later the sortie from the harbor commenced under cover of naval air and gunfire support ships. No enemy fire was received. At 1632 the amphibious ships had cleared the anchorage area, with the gunfire support ships following shortly afterwards.

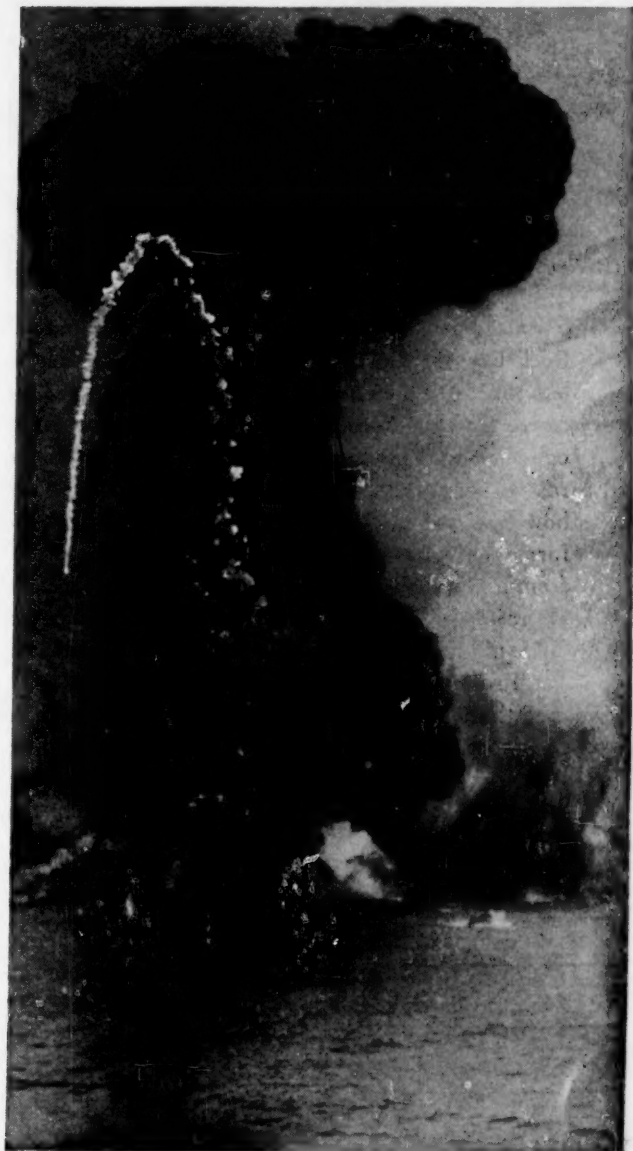
The chill, misty dawn of Christmas Day found the *Mt. McKinley* about to sail for Ulsan with CTF-90 and CG X Corps after an eminently successful operation. It had been pretty much the Navy's three-ring circus, and

studious ensigns were perhaps reminded of lines written by a former preceptor at Annapolis. Naval tactics were somewhat less complex in 1890, but Capt Alfred Thayer Mahan might have been summing up the Hungnam redeployment when he commented on "that noiseless pressure on the vitals . . . that compulsion, whose silence, once noted, becomes to the observer the most striking and awful mark of the working of Sea Power."

On this Christmas Day in 1950, however, it could not be said that TF-90 had applied its pressure noiselessly. For the echoes of the thundering naval gunfire barrage had hardly died out when naval demolitions blew the Hungnam waterfront sky-high in volcanic eruptions of flame and rubble. Then all became silent as the last ships vanished over the horizon, leaving behind them the bleak northeast Korean coast where the 1st Mar Div had landed just two months before to the day. USMC

NEXT MONTH: *The Pohang Guerrilla Hunt—Marine Mission in South Korea.*

BELOW AND RIGHT: As last troops leave Hungnam beachhead, the harbor installations are blown sky high.



In Brief



This one-man midget helicopter is right out of Buck Rogers. Developed by Rotor-Craft, it weighs less than 100 pounds, can be parked in a space no larger than the top of an office desk, and can carry one man and special armament at a much faster rate of climb than our present helicopters. Just how fast and how high it will fly is classified information, of course, but it can land and take off from high mountains never before accessible to any aircraft.

Liquid fuel rockets are mounted in the tips of two small rotor blades. The rotor is attached to a steel tube that curves downward to support fuel tanks, a pilot's seat, and cargo hook. A tube extending backward from the rotor hub carries a small rudder, and another extending forward and down is the pilot's control column. That's all there is to it.

With power off it can glide like an airplane or descend vertically, like a parachute. Its rocket motors display no flame, and in approaching an enemy location at night it would be next to impossible to spot the darting little machine and its pilot.

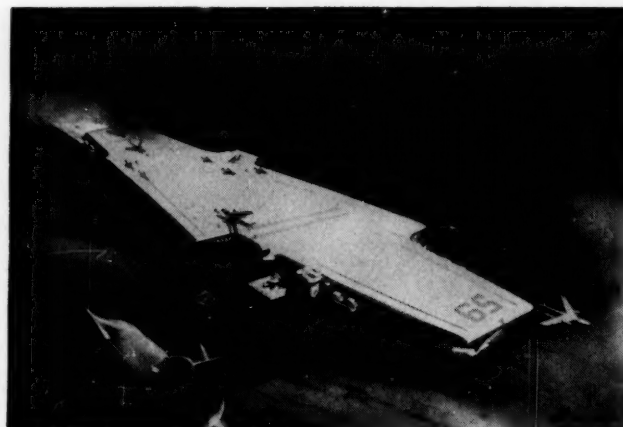
The 1st Mar Div (reinf) has been awarded the Presidential Unit Citation for extraordinary heroism in action in Korea from 15 September to 11 October 1950. The award covers the actions at Wolmi-do, Inchon, Kimpo Airfield, and Seoul.

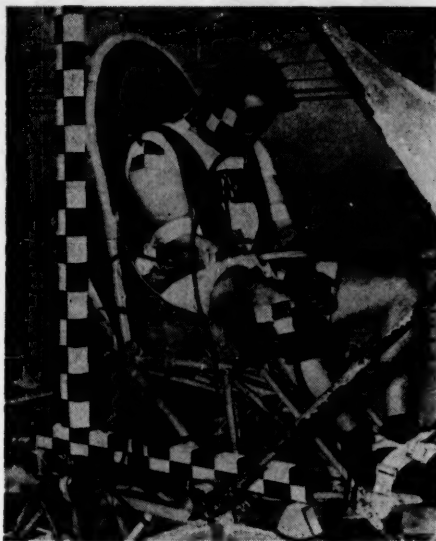
The following Marine Corps reinforcing units are included in the citation:

Rad Relay Plat, 1st Sig Opns Co; Btry C, 1st 4.5 Rkt Bn; 1st DUKW Co; 1st Amtrack Bn (less Co D); 1st CSG; 1st FB Plat; 1st Air Dlv Plat; 7th MT Bn; 1st LVT(A) Bn; Det TACRon 2; Team No. 1, 1st Prov Hist Plat; VMO-6; MAG-33, reinf, including HqSq-33, Seron-33, MGCIS-1, VMF-212, VMF-214, VMF-312, VMF-323, VMF(N)-513, VMF(N)-542.

Thermos boots will protect Marines in Korea this winter. "Guinea pig" personnel of the Marine Corps have tested the boots at 45 degrees below zero by putting on frozen socks and freezing a cupful of water in the boots before putting them on, with no ill effects. The rubber boot operates on the principle of sealed insulation, similar to a thermos bottle.

*The USS Forrestal, the Navy's newest aircraft carrier, is now on the drawing boards and the keel will be laid next summer. The 59,900-ton ship will have a retractile bridge, four catapults, four elevators, and a 1040-foot flight deck. The 3500 men that she will have aboard will have such conveniences as air-conditioned quarters, escalators between ready rooms and the flight deck, and a television system to help pilots land their planes. The *Forrestal* will cruise at 30 knots and will be able to remain at sea for three months without refueling or taking on new supplies.*





The rocket-propelled "decelerator" sled is cocked ready to slam Maj John P. Stapp, USAF flight surgeon, into a barrier at the end of the runway. Maj Stapp, wired to instruments that register his body reactions to physical forces, has ridden the sled many times to determine how much impact a pilot wearing a safety harness could stand in an airplane crash and still survive.

Another dignitary who has become a member of the Marine Corps Association is Gen Sir Leslie C. Hollis, K.C.B., K.B.E., Commandant-General of the Royal Marines. MajGen Henry D. Linscott, editor-in-chief of the GAZETTE, presented Gen Hollis with a membership card and an October issue on his recent visit to Quantico while LtGen Franklin A. Hart, Commandant, Marine Corps Schools, and Gen Hollis' aide observed. The Royal Marines have long been subscribers and contributors to the GAZETTE.



The 1st Marine Air Wing has been awarded the Army Distinguished Unit Citation for its part in the Chosin Reservoir breakout in Korea last November. The citation read in part:

"The historic role of close support air missions flown by personnel on land and carrier-based aircraft during the operations of the X Corps, United States Army contributed immeasurably to the successful withdrawal of the X Corps. . . .

"The repeated acts of valor and gallantry by the officers and men of the 1st Marine Air Wing, Fleet Marine Force, and their enviable combat record reflect great credit on the members thereof. . . ."

The Marines need 1,000 college graduates to meet the increased requirements for junior officers caused by expansion of the Corps. The men who are selected will receive 10 weeks of intensive training at Quantico, and those who successfully complete the course will be commissioned second lieutenants. They will then study for five more months at specialized military schools before going into the field.

Large transparent weather balloons are being sent aloft weekly from the east and west coasts by the Air Force to study high altitude winds. The balloons are 50 to 110 feet in diameter, and are made of plastic one to three thousandths of an inch thick. A radio transmitter and other equipment are suspended 100 feet below the base of the balloon.

The Air Force warns that the balloons may appear as "flying saucers" in the early and late hours of the day, because of the sun reflecting from the plastic.

In the event a collapsed balloon is found, directions for returning the transmitter are attached. The useful plastic balloon may be kept by the finder, who will receive a reward for the return of the radio equipment.



BURNSIDE'S AMPH



The assault landing that Gen Burnside made on Roanoke Island during the Civil War was a far cry from the amphibious operations the Marine Corps specializes in today. In all fairness, however, the general had to make up his doctrine as he went along, plus nurse the many ailments of his infant force at the same time

By Robert W. Daly

THE FLEET MARINE FORCE SPECIALIZING IN AMPHIBIOUS techniques had a distant cousin in the Civil War.

It is difficult to say exactly who originated the concept of an amphibious Army division. Defending his war record in 1864, Gen McClellan claimed that he had proposed on 6 September 1861, to organize a small division of two brigades totaling ten regiments of New England men "adapted to coast service." On the other hand, Gen Burnside stated that while recuperating from the debacle of Bull Run he wrote to McClellan in October, 1861, strongly urging the organization of a division of 12,000 to 15,000 men from the "states bordering on the Northern seacoast." Such a division should have "a fleet of light-draught steamers, sailing vessels, and barges, large enough to transport the division, its armaments and supplies, so that it could be rapidly thrown from point to point on the coast with a view to establishing lodgments on the Southern coast, landing troops, and penetrating into the interior." By holding possession of the inland waters, Burnside pointed out, this division would more than justify its expense by threatening the lines of communication in the rear of the Confederate Army being concentrated in Virginia.

Apart from prior military service, McClellan and Burnside had been friends in business, both being officials of the Illinois Central Railroad when the war began. It is conceivable that the imminence of war had led the former Army officers and West Point graduates to discuss ways and means of defeating the Confederacy. With more than 3,500 miles of vulnerable coastline in the South, the advantages of a special force of offensive-minded, heavily equipped, web-footed troops was obvious. Regardless of who thought of an amphibious division, McClellan was in command of the Army of the Potomac and in a position to activate such a force. The Secretary of War was easily won over, and Burnside was a natural choice for the command of the division.

Shortly after the gestation period of Burnside's novel division, Flag Officer Louis M. Goldsborough, commanding the North Atlantic Blockading Squadron based upon Fortress Monroe, wrote in November, 1861, to the Secretary of the Navy about a way to simplify the problem of blockading Norfolk:

It strikes me that we should command the waters of Pamlico Sound, and this may, I think, be easily accomplished if I can be given a few suitable vessels in addition to those already at Hatteras Inlet. The enemy now have seven or eight small but well-armed steamers

AMPHIBIOUS DIVISION

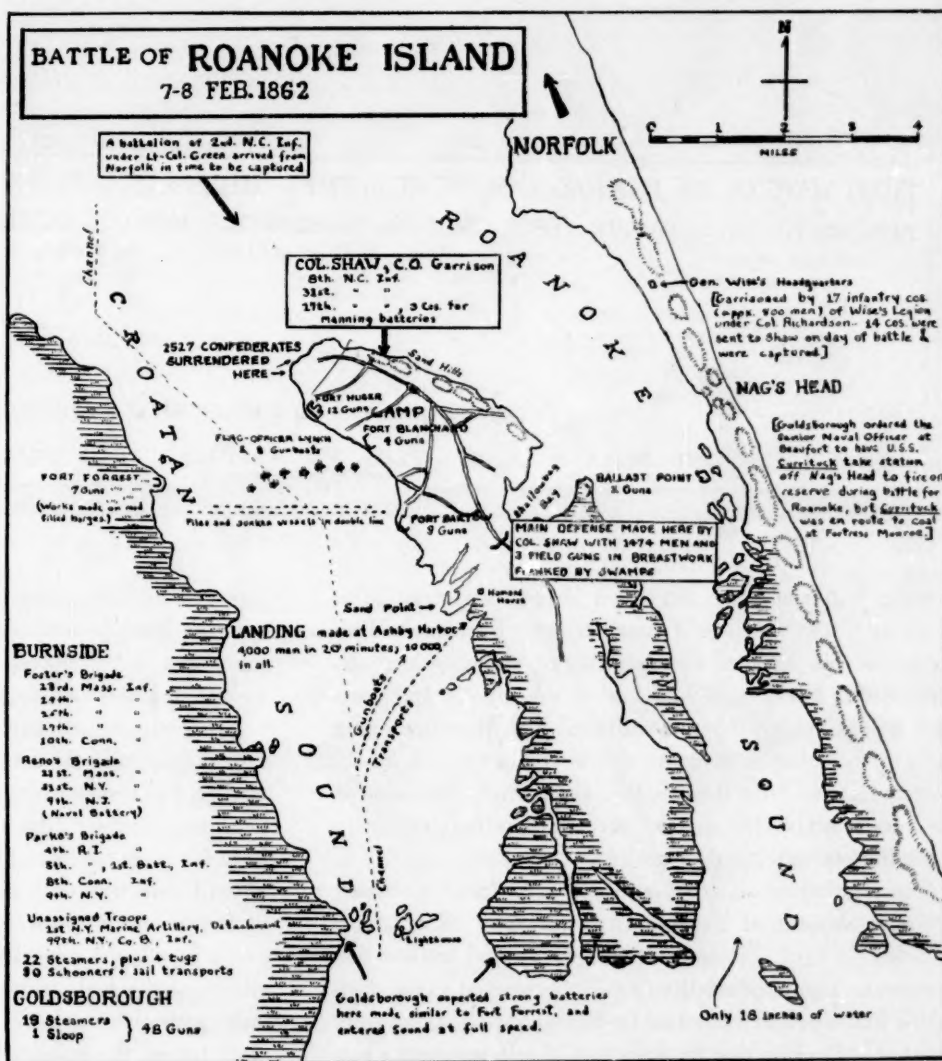
on those waters, and these I propose to attack and subdue. . . . This done, something further may be attempted in the way of driving the enemy away from Roanoke Island by a combined attack on the part of the Army and Navy, ascending Albemarle Sound, destroying the lock or locks thereabouts of the canal between it and Norfolk, and thus effectually cutting off all inland communication by vessels between the two places.

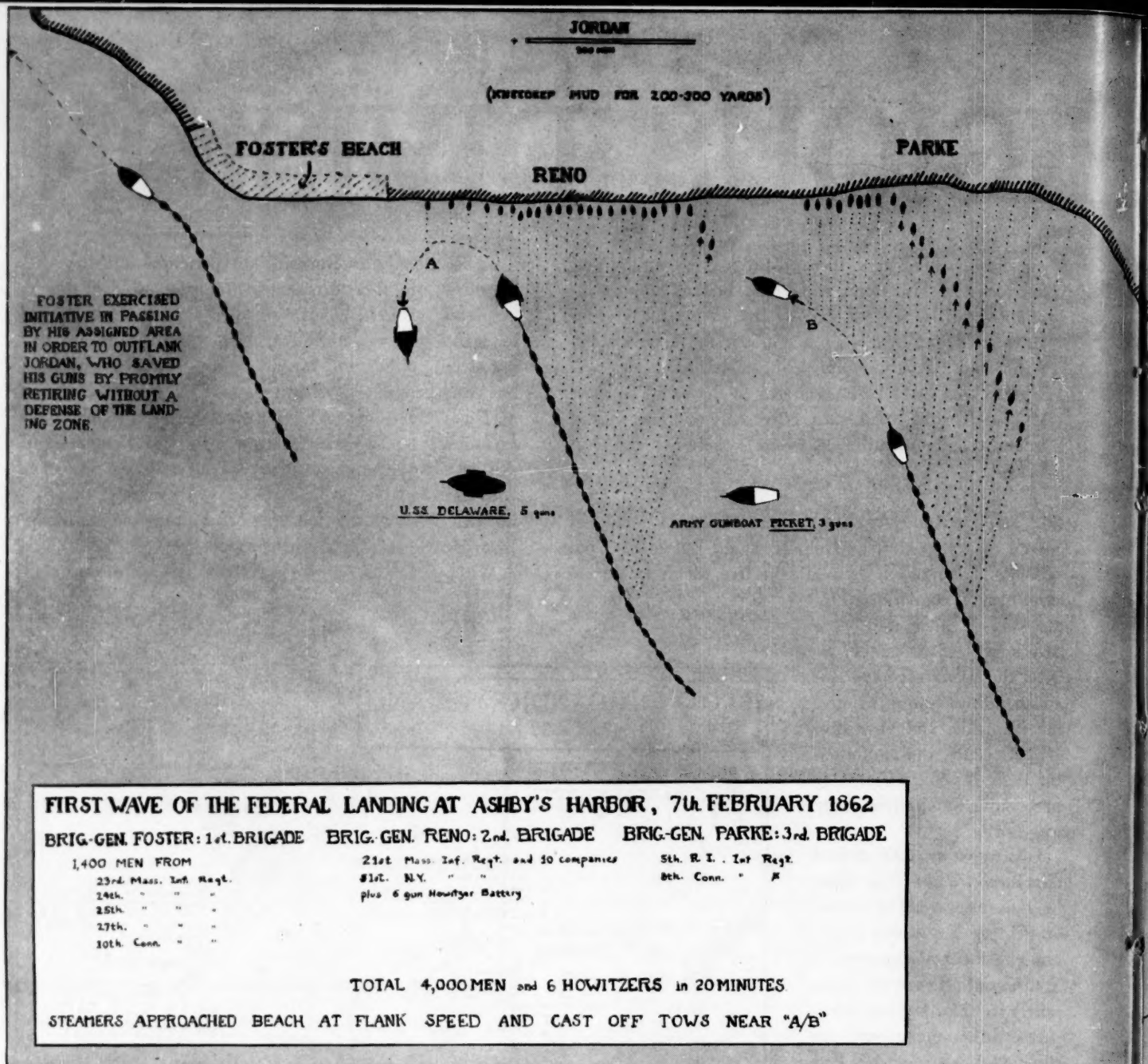
➤ **THUS, WHEN SECRETARY WELLES** enthusiastically endorsed the suggestion by Goldsborough, Burnside's division was presented a physical objective which would ensure hearty cooperation by the Navy. Since the Navy had suggested Roanoke Island, the Army accepted Roanoke as the testing ground for Burnside, and gave him 15 regiments and unlimited funds for his equipment. Our first major amphibious force was born.

Like most infants, it had ailments. While his three brigades were being raised and shipped to camps at Annapolis, Burnside labored in New York to secure his transport. In this, he was compelled to compete with an emaciated Navy which had been abruptly roused from a long period of starvation and given a blank check with which to buy the ships needed to carry out the duty of blockading 180 coastal points. Burnside did not get exactly what he wanted, and had to settle for a hodge-podge assortment of 125 vessels. This activity absorbed most of his energy before the campaign against Roanoke, and his concern with logistics left him very little time for the development of a tactical doctrine.

Today, thanks to Burnside's experiences and those of his successors, it is clear that the logistics problem should be placed in the hands of experts. Burnside, however, set his sights on complete self-sufficiency to the point of buying steam gunboats to form a fighting squadron manned by Army personnel. When the chips were down, Navy or no Navy, Burnside intended to have a force which could carry itself to the objective area in its own 45 steam and sail transports, engage enemy naval units as necessary with its own nine gunboats, lay down support fires from its own five floating batteries, and draw replenishment from its own supply train of schooners.

With gunboats improvised from pleasure steamers,





floating batteries from old canal barges, and transports from anything that could carry troops, Burnside's division was not serviced by elements of an integrated organization. His vessels had few of the virtues and most of the deficiencies of improvisation. The most damaging defect was the wide range of drafts found in such an ill-assorted group, and this became agonizingly apparent as his vessels attempted to pass the Hatteras bulkhead into the shallows off North Carolina.

The admixture of steam and sail introduced an unacceptable element of unreliability into rates of advance, and this, in turn, affected station-keeping and tactical dispositions. The unreliability of sail was proved in the division's first week at Hatteras, as Burnside had it gallingly pointed out to him that he wasn't at all self-sufficient when

supplies had to come by vessels like schooners which couldn't buck headwinds to keep a schedule. Six water schooners were delayed by high winds, and Goldsborough's steamers had to make water for Burnside's men.

The maintenance and repair of the machinery in heterogeneous sidewheelers and propellers was sufficiently vexing, but the stability characteristics of the vessels had been haphazardly altered by war conversion, and troops were far from comfortable. As it happened, the time spent aboard ship was only about four weeks, so the problem of morale never grew as serious as it could have.

All in all, the experiences at Hatteras proved that the efforts of the zealous amateur cannot be compared favorably with the work of a conscientious professional. A week before the operation against Roanoke finally began,

Goldsborough succinctly expressed himself on the subject to Fox: "In case of another joint expedition, everything concerning *all* the vessels should be arranged exclusively by the Navy, & kept under Naval control. *Duality*, I assure you, will not answer, & were you here to witness things with your own eyes you would not differ with me in opinion."

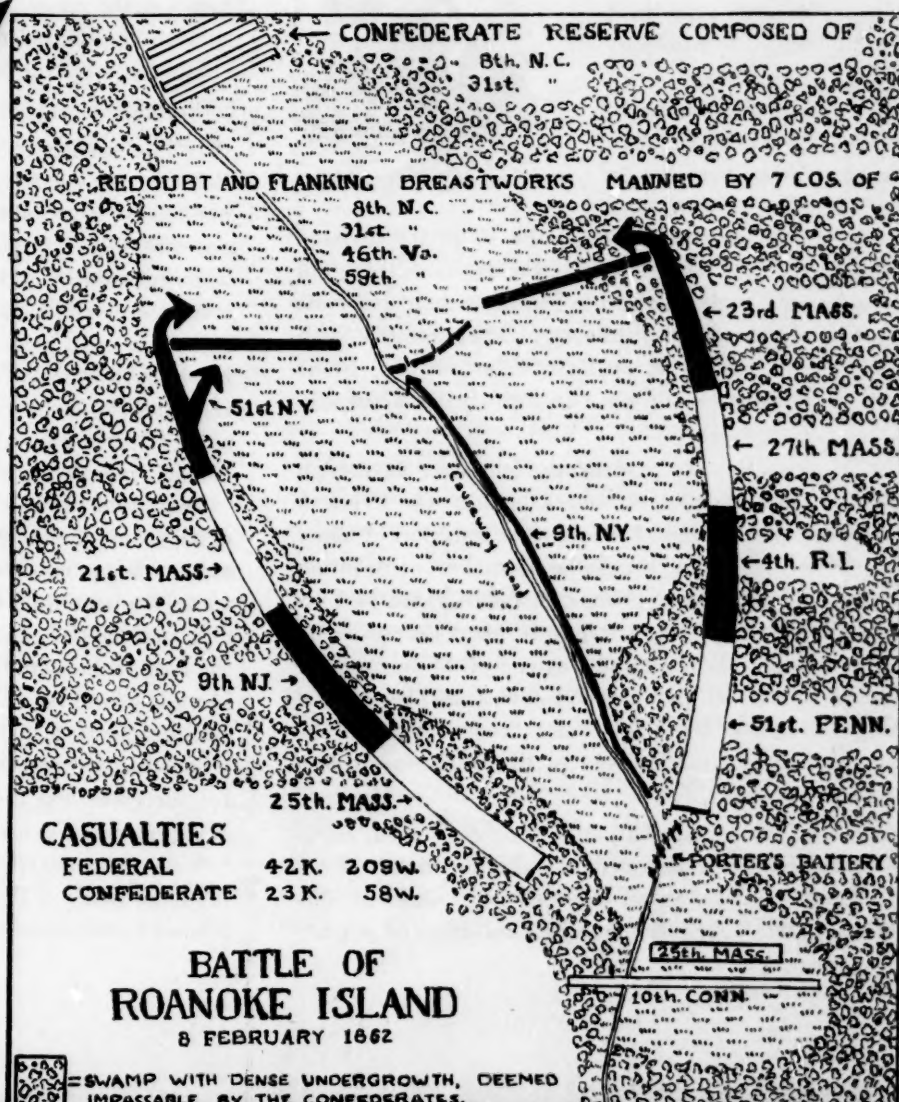
Groping in a virgin jungle, Burnside attempted to substitute foresight for knowledge. Like a good commander, he endeavored to increase his freedom of action in the field by prior solution of situations. Unfortunately, he occupied himself primarily with logistics. Should he need a bridge, he carried two

from his proper sphere as a tactical commander launched upon a trail-blazing mode of war. Once again in logistics, he devised a rough system of combat loading intended to make each transport's 40,000 rounds of ball cartridges readily available.

Burnside was apparently interested only in carrying his force to the objective area, after which nature would presumably take its course. His only noteworthy bow in the direction of tactics was to work out a system of fleet security. This was analogous to an army on the march in hostile territory. Gunboats acted as scouts and flankers protecting the transports of the brigades, which were in three columns in the order of line of march. At night, the gunboats became outposts. To attain a semblance of uniformity in advance, he put a strain upon the machinery of his steamers by having them tow all of the sailing vessels.

Logistically, then, Burnside's work was creditable. Tactically, however, he was lucky. His success in the field was due to a combination of his overwhelming numbers and slipshod defenses by the Confederates, rather than being due to his thorough planning, for in tactics he planned very little.

His three brigades had eight to 14 weeks at An-



with him. One was a standard india-rubber pontoon train, while the other was specially made of 300 boats built like small double-ended scows which could be linked into a floating bridge 5,440 feet long. Attention to details such as these kept him



Annapolis while Burnside did a quartermaster's job in New York. During this period, the enthusiastic but raw regiments sweated through basic training that ultimately led to brigade maneuvers. Colonels stressed the manual of arms and close order drill as though their men were to be part of the Army of the Potomac instead of becoming a unique force. Granted that such drill was necessary to make facsimiles of soldiers in a hurry, it should equally be granted that these troops could be expected to meet equals in inexperience rather than veteran professionals. In such a case of raw levy against raw levy, surely Burnside's brigades at some point reached a degree of drill efficiency tolerable for the times, and at this point a day might have been spared for such an elementary procedure as simulating a landing. Individually, these sea-coast men might have known all there was to know about boats, but it could not be assumed that they would also perform well as a team. However, the winter at Annapolis was unusual, and the men were new to discipline, and it may have been that brigadiers and colonels readily supported the proposition that it was ridiculous to risk pneumonia by going through the motions of such a simple process as landing on an enemy beach. Whatever the reason for such an oversight, the regiments drilled and otherwise marked time until Burnside had his transport ready.

The embarkation in early January, 1862, should have been a danger signal. As the 12 regiments that were deemed ready for service out of the 15 in the division were put aboard their transports, the movement got out of hand. Some regiments had to huddle in their overcoats in the Naval Academy yard overnight, separated from their blankets and gear, as Burnside's timetable broke down. The embarkation was far from being a smooth, auspicious beginning.

In a way, this was surprising. It wasn't as though whole divisions hadn't been moved before. The Crimean War was a recent example of successful transport of many divisions many, many times the distances confronting Burnside. Furthermore, Burnside's good friend McClellan had written an excellent report of his observations on the art of war in Europe, and was one of the few men in America capable of giving sound advice, as his personal acquaintance with the British and French effort in the Crimea was extensive. In any case, Burnside was off to a bad start.

Had the foulup of embarkation taught a lesson, Burnside could have demonstrated it while the foulup of his logistics gave his troops an enforced three weeks of idleness at Hatteras. The Hatteras beaches afforded a prac-

tice area for developing some skill in debarkation, but the only troops who went ashore did so to stretch their legs. If the Confederates had the resources to develop a proper defense for Roanoke Island, such a casual attitude towards fundamentals would have meant blood. As it was, Burnside's amphibious force was destined to receive its training under bloodless circumstances.

Battered by storms, Burnside's motley fleet gathered slowly at Hatteras, where the diversity in drafts dragged out the assembly period as ships had to be lightened and worried by brute force across the bulkhead of the inlet. Goldsborough, whose own 20 vessels had been carried through the inlet with ease by January 15th, fumed impatiently during the delay. Finally, on February 5th, 1862, Burnside was ready, and operations against Roanoke could begin.

The collection of the expedition had been undertaken in a secrecy unusual at a time when newspapers freely and fully reported information that modern intelligence services would sacrifice lives to obtain. The press was strictly curbed. As Goldsborough put the case, "If the enemy should get wind of our intentions he may give us trouble enough to render a demonstration upon Norfolk itself desirable, in order to create a diversion, & thus prevent him from reinforcing Roanoke Island with thousands of men via the canal." Fortunately for the success of the venture, the Confederacy was still in the pangs of organization for war and had not attained its subsequent grim competence.

THE STRATEGIC SIGNIFICANCE and need of defending Roanoke were clearly understood, but there was neither unanimity of opinion on how defenses should be made nor a realistic appraisal of the garrison required. As the war broke out, Gen Huger, commanding at Norfolk, felt a twinge of anxiety about Albemarle Sound in his rear, and put a small regiment on the island. He did not think, however, in terms of amphibious attack when he later was requested by BrigGen Wise to send reinforcements, because Huger was content to believe that the Yankees couldn't march an army up the sandspit to Norfolk.

For an all too brief time, D. H. Hill had Roanoke under his jurisdiction in the fall of 1861. Huger's men had already begun construction of the final fortifications, and while Commodore Lynch and Hill agreed that the principal defenses should have been built at the marshes at the foot of the island, Hill realistically accepted what had been done and bent his efforts towards throwing a line of entrenchments across the middle of the island. Hill was relieved on November 26th before this could be done, and his successor was the zealous amateur soldier Henry A. Wise, pre-war Governor of Virginia.

Wise was staggered by the importance of his post and the inadequacy of the means allotted it. He began in December a relentless barrage of correspondence which later



exonerated him of any guilt when the Confederate Congress investigated the loss of Roanoke and fixed responsibility upon the Secretary of War and Huger. Wise's estimate was then officially accepted:

... it ought to have been defended by all the means in the power of the Government. It was the key to all the rear defenses of Norfolk. It unlocked two sounds ... eight rivers ... four canals ... and two railroads. ... It guarded more than four-fifths of all Norfolk's supplies of corn, pork, and forage, and it cut the command of Gen Huber off from all of its most efficient transportation. ... It should have been defended at the expense of 20,000 men and of many millions of dollars.

Instead, Wise found himself with two undermanned North Carolina regiments and three companies of a third regiment for gun crews, and couldn't expedite the transfer to him of his own battle-trained Legion.*

THE FORTIFICATIONS OF ROANOKE consisted of Fort Bartow, built of turfed sand, with six long and obsolete 32-pdrs in embrasure and three more en barbette firing over a curtain to the south; Fort Blanchard, built also of turfed sand, 2½ miles north of Bartow, with four 32-pdrs en barbette; and Fort Huger, also of turfed sand, closed in the rear by a breastwork, mounting eight 32-pdrs in embrasure and four en barbette. On the other side of the island, a two gun battery at Ballast Point protected the communication line into Shallowbag Bay. In the middle of the island, a redoubt 80 feet long sat athwart the causeway road through a dense swamp, and was flanked by breastworks. Across on the mainland, Fort Forrest, mounting seven 32-pdrs, had been built on two barges rammed into the swampy shore. Croatan Sound was obstructed by a double line of 16 sunken vessels and a system of pilings still being put down when the attack developed.

For mobile defense, the 8th and 31st North Carolina Infantry Regiments did not inspire Wise. During the winter, heavy, constant rains had brought onslaughts of pneumonia, typhoid fever, and measles which put 25 per cent of the effective strength sick in the 12 large barracks or three much-needed hospitals. Uniforms were inadequate, grey, brown, homespun, and blue—whatever a man could manage. Blankets were made out of brightly colored carpeting, and coarse duck substituted for leather in such items as equipment slings and haversacks. Pork and grain were plentiful, but not adequate as a diet, and tobacco and coffee were scarce. Weapons were as varied as their owner's garb, and ranged from shotguns through

superb sporting rifles to gigantic knives. Field artillery consisted of three guns, a 6-pdr, a 24-pdr Navy howitzer, and an 18-pdr. For this last gun, only 12-pdr ammunition was available. As 17 companies of his Legion drifted in dribblets to Nag's Head, it was no wonder that Wise was buoyed up by their excellent equipment and morale.

And then, eight days before the attack, Wise was incapacitated by an attack of pleurisy, so that active command on Roanoke rested upon the shoulders of Col H. M. Shaw. Shaw was 45 years old, slight in figure and medium of height, and had the misfortune to have been born in Rhode Island. His reputation did not survive his pre-doomed fight.

As the expedition at last got underway on February 5th, Burnside had some 13,000 men in his transports and was protected by his gunboats and 19 naval vessels. McClellan's orders to Burnside contained the essence of a battle plan: "It is presumed that the Navy can reduce the batteries on the marshes and cover the landing of your troops on the main island, by which, in connection with a rapid movement of the gunboats to the northern extremity as soon as the marsh battery is reduced, it may be hoped to capture the entire garrison of the place."



Goldsborough was thus assigned a clear mission and his orders to subordinates primarily dealt with the artillery requirements for reducing batteries. On his own

initiative, however, he sought to take advantage of the division of Confederate forces by ordering the *Chippewa* up from Beaufort to bombard Nags Head from the Atlantic side in support, and later to harass the Confederate retreat up the sandspit. The *Chippewa*, however, had gone to Fortress Monroe to coal, not aware of the supply at Hatteras, and so was not available.

The expedition anchored before sunset 10 miles south of Roanoke, while Lt Jeffers went ashore to get a Unionist who might be able to improve Burnside's knowledge. As it was Union intelligence was accurate enough with respect to the batteries, except for those that Goldsborough anticipated at the marshes. With respect to forces, however, information was erroneous. The Confederates did not have 2,300 men on the island and 5,000 in reserve. They had only an effective force of 1,435 on the island, a reserve of 17 companies totaling about 800 men at Nag's Head, and an ill-fated battalion of 500 men from the 2d North Carolina Infantry who landed from Norfolk in time to be captured.

February 6th opened with rain that settled into a thick fog by noon, postponing all operations.

*Wise's Legion might be considered an ancestor of the regimental combat team. It included the three branches of infantry, cavalry, and artillery, numbered about 3,000 men, and was designed by Wise to be an integrated force. He had come from fighting with his Legion in West Virginia to arrive in command of Roanoke on 8 January 1862, exactly one month before its fall.

optimistic signal by Burnside to prepare to land. About 1015, the *Ceres* and *Putnam* dashed into Croatan Sound, ran up about four miles, and returned to report that they had seen 15 steamers and 10 sailing vessels at anchor. Flag Officer Lynch's eight gunboats were thereby counted almost accurately in with the 16 miscellaneous vessels sunk to block the channel. This erroneous information caused Burnside to strip five of his gunboats of their troops in order to supplement Goldsborough's fighting line.

The long awaited appearance of the Yankees fired Wise with energy, but not enough for him to find the strength to lead his troops in the field. He had to dictate his orders to Shaw. Assuming that the four forts, Lynch's gunboats, and the line of obstructions were sufficient to protect the northern portion of the island, Wise correctly saw only two possible landing places on the low, swampy, gnarl-wooded shores. One was Ashby Harbor, about midway on the island, and the other was Pugh's Landing, some four miles to the south. His orders were explicit:

... You will move the whole of your infantry, except what is ample for the batteries, stationing one-third at Pugh's, one third at Ashby's, and the remaining third at the breastworks called Suple's Hill. If the enemy attempt to land at Pugh's the force will re-enforce that at Pugh's, and fight every inch of ground at the water's edge as long as prudence will permit.

IN CASE BURNSIDE LANDED AT ASHBY's, the force at Pugh's was to speed north to the area. The precious field guns were to be protected at all costs for the final stand to be made at the central breastworks. If the Yankees broke through the barriers and Lynch's gunboats and rounded the island before attempting to land, Wise considered Roanoke automatically lost and promised Shaw that every effort would be made to give him transport across Roanoke Sound.

Considering the inadequate resources which the Confederates had, this plan if coupled to a determination to fight hard would have given the Union's amphibious force some trouble. Instead, Shaw modified the orders to suit himself. He stationed Col Jordan with 200 men at Ashby's and Capt Whitson with a company at Pugh's. The remainder of the available infantry were under arms at the camps or at the breastworks. Shaw himself went to Fort Bartow to observe.

By 1000, 7 February 1862, the expedition was under-way. Burnside and Goldsborough had conflicting information about the defenses, and both were concerned about the unknown hazards at the landing area. Ashby Harbor had been selected as the only practicable beachhead for more than 10,000 men, but a glance at the map showed that Sand Point took the area in flank. Next to the failure to throw up batteries at the entrance to Croatan Sound and to have concentrated the effort of driving piles

and sinking obstructions across a narrow channel not 100 yards across, Goldsborough was most surprised by the Confederate failure to place a battery at Sand Point. Steaming ahead of the fleet, the *Underwriter* signalled this welcome news at 1125, and Goldsborough was thoroughly relieved. "The omission to guard this point was favorable to the arrangement of landing the troops at Ashby's Harbor," he reported. "Had it been protected, our difficulties would have been materially increased." And then, he had further welcome news. The array of gunboats originally and erroneously reported by the *Ceres* turned out to be Lynch's eight. With better than two to one superiority alone, Goldsborough moved to the attack with the continued help of the five Army gunboats.

GOLDSBOROUGH ENGAGED LYNCH and immediately demonstrated the weakness of the Confederate battery positions. Only Fort Bartow was within effective range, and of the nine guns there, Goldsborough nullified the six in embrasures by hugging close to the shore below the fort. Only Bartow's three en barbette guns were really in the fight; all the others were useless even as a threat.

Well out of even ricochet range, Burnside's transports anchored and prepared to disembark their troops. To obtain more precise information, now that everything was going so well, Burnside sent his topographical officer, Lt W. S. Andrews, at noon in a small boat into Ashby's Harbor. Jordan's men were screened in the dense undergrowth and trees behind the landing, and Andrews coolly made soundings, surveyed the approaches, and actually set foot ashore before Jordan bestirred himself to send a detail to capture Andrews. Andrews made good his escape, and rowed back out to Burnside with one of his six men wounded in the jaw. His cool competence earned him special commendation in the general's report.

CONVINCED that there was sufficient water available for the approach, Burnside ordered his brigadiers to prepare to land. The first phase of the ship-to-shore movement had been carefully worked out so far as getting the men to the beach was concerned. An unknown element like Jordan and his two guns, however, remained both unknown and unprovided for. In light marching order, with overcoats to serve as blankets, 40 rounds of ball cartridge per man, the troops entered their surfboats and milled about until they were in precise order to present brigade front immediately upon being put ashore.

To the north, lost in the haze of black powder smoke and the water cascading up from shells, the detachment of five Army gunboats happily banged away at the Confederate squadron. They hadn't been recalled when Lynch's actual strength was verified. The five floating batteries were busy in the exercise of disgorging their troops. Thus, Burnside's first wave was going to their

beachhead without either preliminary bombardment of the surrounding area or provision for on call fire.

The mysteries lurking in the tall grass and tangled woods did not apparently concern any of Burnside's commanders or staff. All eyes were on the boats being lashed in trains of twenty or more. As each brigade was ready, a light-draft steamer took it in tow and, about 1500, all was ready. The steamers charged for the beach under a full head of steam.

Comdr Rowan, captain of the *Delaware* and Goldsborough's second-in-command, looked away from Fort Bartow in time to see the steamers head for the beach. Having witnessed the reception of Andrews, Rowan quickly got underway and ran down to precede Foster's steamer *Pilot Boy*. As Rowan hastily flung nine-inch shrapnel into the woods occupied by the faintly visible figures of Jordan's two companies, Capt Hazard, the naval officer assigned by Welles to Burnside's staff and in command of the Army gunboat *Picket*, broke off action with Lynch and joined Rowan. Spontaneously, then, the landing force had its preliminary bombardment. The *Delaware* and *Picket* pumped huge shells and shrapnel at Jordan, who quickly forgot his orders from Wise and Shaw except to remember that his guns had to be saved at all costs.

Without firing even a musket shot, Jordan retired. The 4,000 men jammed into some 65 boats were thus enabled to glide in unopposed.

❁ NO ONE WOULD SERIOUSLY ARGUE that Jordan could have prevented the landing, but he obviously threw away an opportunity to teach a sharp lesson. Had Jordan been Stuart's resolute John Pelham, this first wave of Burnside's would have found the landing interesting. Pelham doubtless would have considered the 200-300 yard barrier of kneedeep mud in front of his position an adequate barrier to provide him the time to shoot and get away.

With two guns, the results would have punishing rather than disastrous effects. Assuming three shells per gun per minute, 18 shells could have been hurled before the first boat cast off its towline, if the steamers had a speed of 15 knots, placing the boats within effective range for three minutes. With the Federal troops helplessly huddled together, the gamble of firing double-shotted spherical case or canister during the last minute could have alone produced as many as 300 casualties.

Having complied with the spirit and letter of Wise's orders, Jordan had ample time as soon as the first Yankees reached shore to have one company man the sling to drag off the field guns while the other company deployed as skirmishers to check pursuit. As it was, pursuit might not have been too serious. The Union regiments formed properly on the beach, taking their time, and



then disintegrated into comparative disorder negotiating the swamp and had to stop for reforming upon reaching dry ground.

But there wasn't any resistance. Roanoke Island inflicted its own casualties in the shape of bruised and scraped shins and twisted ankles.

With respect to the landing, Burnside said, "I never witnessed a more beautiful sight. . . . As the steamers approached the shore at a rapid speed each surfboat was 'let go,' and with their acquired velocity and by direction of the steersman reached the shore in line." Thanks to Jordan's caution, the first wave landed without a foulup, and the dangers of presenting a stout-hearted artilleryman with a target of men squeezed into a single line of fire were not made apparent.

After this first wave, however, Burnside's organizational work had apparently ended. The recall of boats and reformation of groups must have been left to improvisation, because while 20 minutes sufficed to land 4,000 men and Midshipman Porter's six-gun howitzer battery, the remainder of Burnside's men weren't ashore until midnight.

The battle itself was an anti-climax and may be readily understood from the sketch map adapted from the one made by Andrews. In brief, 11 fully equipped regiments totalling 11,000 men fought two regiments and elements of two others, poorly armed, sickly, and low in morale. Even the pitiful support of the 14 companies Wise promptly stripped from the 17 of his Legion the instant he heard the sound of the guns, could only swell the bag of prisoners.

The Confederates had relied upon the impassibility of the swampy woods flanking the central marsh, but the Union forces stoutly plunged ahead, avoiding the chevaux-de-frise made before the battery and breastworks of felled trees with axe-sharpened branches. Actually, only seven companies of the Confederates had room on the firing line, and Jordan commanded the reserve, which never came into action.

In summary, the operations against Roanoke Island were considered eminently successful by the Union authorities. Practice had been attained in making an amphibious landing on a division scale, and lessons were available for review and improvement.

USMC

Let's Use What We Have

If the radios we have are used correctly there will be no need for the signal pistol

KEEP THE SIGNAL PISTOL WHERE IT BELONGS—behind glass in the museums, along with the flamethrowers, Stokes mortars, and other vintage weapons of World War I. It has served its purpose and been relegated to the "obsolete" category; let's not exhume it.

The author of *The Signal Pistol Back To The Front* (Gazette) is to be commended for his interest in captured signal equipment. However, there are a number of reasons why the signal pistol is not the answer to the problem of communications. This article will point out these reasons, and, in addition, make some suggestions to improve communications in the lower echelons using the equipment already organic to the Marine division.

WE ALREADY HAVE in the Marine division, various types of pyrotechnics which serve the same purpose as the signal pistol. We have the "signal, ground" in various colors, and in both cluster and parachute. These are operated from the rifle or carbine grenade launcher, an item issued in sufficient quantity to the personnel of the rifle company. The ground signals themselves, an ordinance item, incidentally, are also available for issue to the rifle company. If the decision is reached that pyrotechnics provide a good emergency means of communication for the rifle company and/or platoon, we should use them. We do not need a cumbersome pistol and ammunition further to burden down our already overburdened troop leaders.

A number of questions arise when we speculate upon the advisability of depending on pyrotechnics—particularly those captured from the enemy—for certain prearranged messages by and between front-line troops. It seems fairly certain that an alert enemy, observing our use of pyrotechnics, would immediately institute countermeasures with a fine Fourth-of-July display, and result in rather chaotic results on our own troops.

TO CONJURE up an example of this confusion is easy. Lt Joe, platoon commander, 1st Plat, has arranged with Lt Roe, section leader, 60mm mortar section, to bring down prearranged fire on Hill 666 when he sees a red flare group. But, surprisingly, the enemy has withdrawn. Lt Joe receives practically no opposition in his assault, and does not need his supporting mortar fire after all. The enemy, though, has noticed our use of pyrotechnics and, about the time Lt Joe's platoon is reorganizing on the hill's summit, he shoots off a red flare. Down comes the prearranged mortar fire, but it is Lt Joe and his men, not the enemy, who are digging frantically for cover.

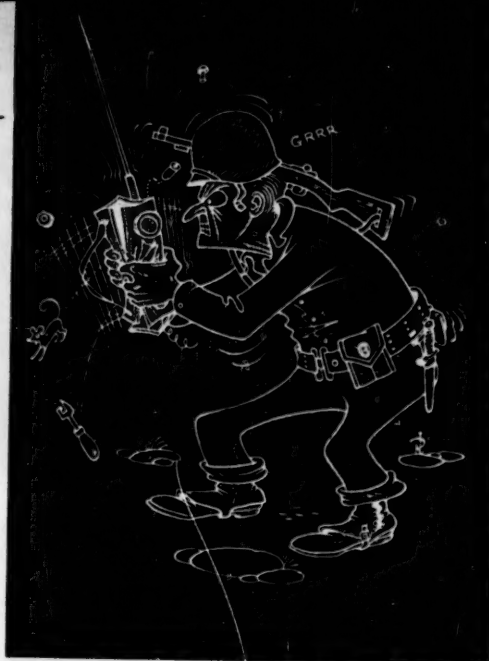
True, this is an oversimplified instance but it serves to emphasize that pyrotechnics are not the solution for front-line communications.

Another consideration, and one of great personal importance to the platoon commander and his men, is that the signal shot from the signal pistol is similar to a tracer bullet in that it divulges the firer's position to an observant enemy. The present ground signal (employed with the grenade launcher) circumvents this disadvantage by not exploding until near the apex of its trajectory.

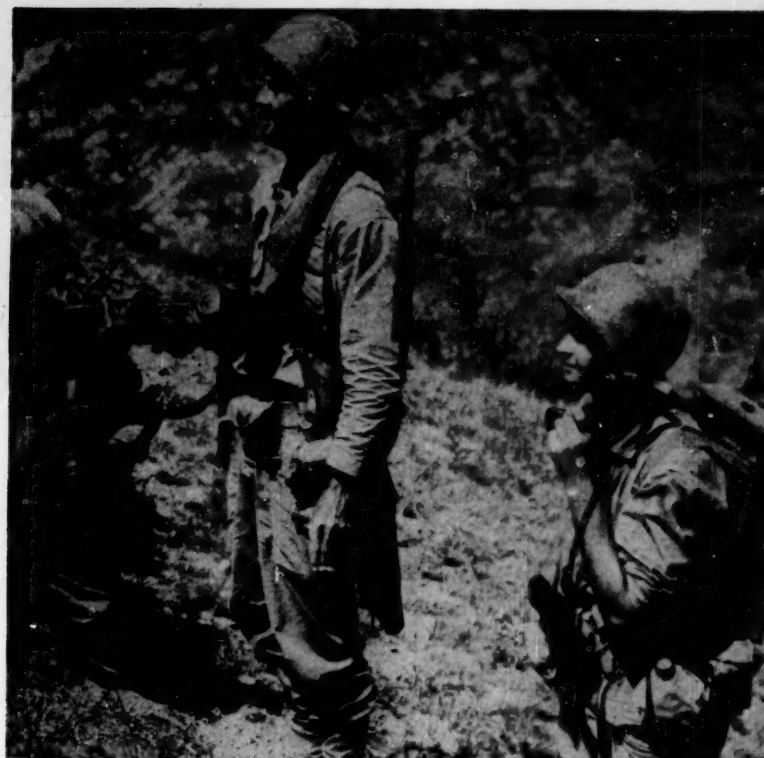
UNDOUBTEDLY one of the contributing factors in the successful use of the signal pistol by Lt Barrett was that his unit alone was using it (at least he mentions no other users of it). On a division front employing eight rifle companies on the line, and a total of 16 rifle platoons, it seems that any wide-spread use of the signal pistol, or even comparatively limited, emergency use of it, would promote confusion rather than control.

Whether or not the author of "Signal Pistol" cleared his usage of it through channels, this writer does not know. However, for the information of those who may in the future envisage use of captured enemy signal equipment for their own purposes, a word of warning. It is almost axiomatic that every Standing Operating Procedure will contain a statement to the effect that all equipment of this nature will be turned in to the division signal officer. The communications employed in a Marine division, down even to the platoon level, are of





RIGHT: A company commander in Korea holds an SCR-536 while his SCR-300 operator monitors battalion net.



vital interest to the signal officer; improvisations, while sometimes necessary in certain tactical situations, should be with the eventual cognizance and approval of this officer. As far as pyrotechnics are concerned, the division signal operating instructions (or the signal annex to a specific operation order) will contain the pyrotechnic code. Indiscriminate use of captured enemy ground signals may easily conflict with the provisions of this code, again causing possible confusion and misinterpretation.

Now, what about the communication equipment presently in use within the Marine division, and more specifically, radio equipment on the platoon and company level? Will it provide the required channels of control? Will it do the job for which it was designed and for which it is needed? In short, will it work?

Here is where those old standbys, "capabilities" and "limitations" enter the picture. It would be very fine indeed if we could have a radio that would have infinite capabilities and negligible limitations. Unfortunately, this is presently impossible. The radios now organic within the Marine division were designed for certain specific purposes; when used for those purposes, and used *properly*, they will do the job. The key word here is "properly."

Take the case of the much-maligned SCR-536. Probably more abuse is levelled against this than any other piece of radio equipment we have. This is natural, because it is the radio that platoon and company commanders

themselves carry and operate. When it fails to operate for them, their screams fill the air. But a few hours of instruction would, in many cases, materially improve the results they could obtain from their SCR-536 radios. Some company-grade officers have taken the trouble to learn that there is more to know about this radio than merely how to push the "press-to-talk" switch, and then shout into the microphone. These officers know that the 536 is not just an additional piece of radio gear that might possibly work. In Korea, for example, Maj Ike Fenton, commanding a rifle company, used his SCR-536 radios to excellent advantage when some other, less informed company commanders were demanding the more powerful (and much heavier) SCR-300 for intra-company communication.

The SCR-536 is an ultra-portable radio, and it is not designed for communication over widely extended fronts, as so often occurs in Korea. Being extremely compact, the 536 is also very vulnerable to shock. It cannot be treated haphazardly, and still be expected to operate efficiently. It is fully realized that when a platoon commander "hits the deck" under fire, he cannot always treat his radio like a month-old baby. He also cannot expect to grind it into the gravel under his falling body, and still have it work.

Another point of consideration regarding the SCR-536

By Capt George M. Bryant

The SCR-536 radio (left) is carried by platoon and company commanders. TBX radio (right) is used by battalion and regimental commanders.



is the importance of minor maintenance, including changing of batteries. These radios are on the T/E of the rifle company, but, unfortunately, the company rates no communication specialist to insure that proper maintenance procedures are being carried out. The officers and NCOs who are using the radio must be trained to care for it. The 536 is not waterproof; it must be kept reasonably dry. The antenna is fragile; it cannot be jerked out and shoved back in like a dime-store telescope. The batteries, particularly in unseasonable climates, have a very limited life, and must be changed frequently. If left in the set without changing for more than a few days, they may deteriorate and swell, causing corrosion and damage within the radio itself.

There is no denying that the SCR-536 must be babied, coddled, and protected. But take care of it, learn its technical idiosyncrasies, and it will work for you.

An item of extreme importance, though often neglected, in the successful use of the SCR-536, (or any low-power radio) is the matter of siting. The 536 (and the SCR-300) are considered line-of-sight radios. This does not imply that there must actually be no intervening terrain masks whatsoever; but it does mean that they will not operate in any and all locations. Many times, the movement of only a few yards will mean the difference between a dead SCR-536, and loud and clear transmission and reception. Admittedly, there are times when the platoon commander cannot move around at will to select a good radio site, but there are many more times when he could, but doesn't.

There are certain improvised measures that can also be resorted to, which will improve the operating characteristics of the 536, and other low-power radios. How many platoon or company commanders know, for example, that a 100-foot length of ordinary field wire, one end bared and tied to the radio's antenna, and extended on the deck in the direction of the other station, or thrown over the limb of a tree, will often provide communication when the ordinary antenna will not? Consult the communication officer; he knows about these field expedients and will be glad to assist you.

A couple of words on the tactical employment of the

536. Although the rifle company rates only seven, additional sets can be obtained by the unit communication officer from the division signal battalion. They can be issued to the machine guns and the 60mm mortars, all on a common company frequency, giving the platoon and/or company commander the means for control of these supporting weapons. Additional sets can be used for special patrols, when operating within the range of the radio. How the radios are used within the company is entirely up to the company commander and his company officers. Again, the battalion communication officer is available for advice; that's why he has had months of special training.

In tactical situations where the SCR-536 will not do the job because of range or terrain difficulties, the SCR-300 is the answer. As with the 536, the battalion communication officer can usually obtain additional 300s from higher headquarters for special purposes. A platoon, acting as point for a patrol, for example, could request an additional SCR-300 for contact with supporting tanks, and for more reliable communication with company and battalion headquarters.

Parenthetically, it should be stated that Lt Barrett, in his brief discussion of tank-infantry communications, neglects to mention any use of the sound-power telephone on the rear of the tank, when he did not have an SCR-300 available, to contact the tank commander. That is why it is there.

It is the writer's opinion that the communication equipment presently organic to the rifle company is sufficient, *if properly employed*. It may be that all company officers are not familiar with the various means available, or how best to use them. If this is true, the blame falls on the unit communication officers, or their superiors. Instruction should be held, when possible, by the communication officer, to insure that all of the battalion officers know what they have or can get, how to take care of it, and how to operate it. They should be taught that, when they encounter communication problems and difficulties, they can solicit assistance and advice from the unit communication officer.

He'll do his best to help.

USMC

KOREA AWARDS



Navy Cross

PFC David W. Alley, LtCol Charles L. Banks, Maj John J. Canney, Sgt Andrew F. Dunay, and Cpl Russell J. House.

Distinguished Service Cross

Cpl Kenneth L. Bartholomew, 2dLt John S. Carson, PFC Edward A. Clapp, and Col Richard W. Hayward.

Silver Star

PFC Rowan D. Atwood, 1stLt Roscoe L. Barrett (2d), PFC Robert N. Blevins, PFC Robert L. Bowers, Jr., PFC George E. Buckethorpe, 2dLt Richard E. Carey, Capt Clarence E. Corley, Jr. (2d), LtCol Raymond G. Davis (2d), PFC Francis J. Devine, Capt Norman G. Ewers, Sgt William L. Holemon, 1stLt Eugenous M. M. Hovatter, PFC Jans F. Hursey, Sgt William S. Johnson, PFC Walter F. Kasterko, PFC Charles M. Kaylor, LtCol John F. Kinney, TSgt Charles Knox, Jr., PFC John F. McQuade, PFC Anthony Marcatante, SSgt James B. Nash, Capt Clarence W. Parkins (2d), Cpl Billy J. Paige, PFC Wilburn D. Pirtle and Sgt Charles H. Poorman.

Legion of Merit

LtCol Merritt Adelman, LtCol James O. Appleyard, LtCol Harvey A. Feehan, Col Bryghte D. Godbold and Maj Thomas T. Grady.

Distinguished Flying Cross

1stLt Charles W. Abrahams, 1stLt Jack H. Adam, Capt William A. Bortz, Capt Charles E. Boswell, Jr., TSgt Truman C. Bunce, Capt Elwood D. Bush, Capt Merton K. Cameron, Jr., MSgt Robert E. Catlapp, Capt Oliver W. Curtis (3d), 2dLt George A. Dimsdale, Capt Ronal L. Fenton (2d), Capt Kenneth G. Fiegner, Capt Howard J. Finn (7th), 2dLt James A. Gleaves, Jr., 1stLt John V. Hanes (3d), Capt Roland B. Heilman (4th), 1stLt William H. Holden, Capt Dan C. Holland (2d), Capt Harry Hunter, Jr., 1stLt William J. Kane, Jr., Capt Harvey A. Keeling, Jr., Capt Joseph Keller, TSgt Karl V. Kludt and Maj Robert B. Laing.

Bronze Star

Cpl Wilfard E. Abdon, Sgt Clifford R. Allen, PFC Harold R. Anderson, Cpl Lowell D. Anderson, Cpl James M. Angell, Cpl John C. Babyak, Sgt Francis E. Bartlett, Jr., Cpl Elmer A. Belg, Maj Orville L. Bibb, Cpl Forest Brandon, 1stLt Richard H. Brennan, SSgt Larry W. Bridges, TSgt Edwin Bullard, 1stLt Jack H. Butler, 1stLt Francis B. Carlon, Maj Thomas F. Cave, Jr., Sgt Ralph D. Coffman, Cpl Gabriel A. Collins, 1stLt John P. Cooney, Cpl Donald R. Courtney, 1stLt Jesse T. Cutler, 1stLt Oliver E. Dial, 1stLt Wallace E. Dibble, Jr., Capt Patrick Dugan, Sgt Donald R. Duryea, TSgt Albert J. Ester gall and Sgt Morris L. Estess.

Sgt Robert L. Ford, Sgt Andrew W. Fleming, SSgt George E. Frazier, Sgt James Grant, Sgt Llewellyn W. Grant, 1stLt Melvin K. Green, Sgt Charles I. Halbrook, Capt Donald J. Hallameyer, PFC Richard E. Honcack, TSgt Charles W. Harrison, CWO Willie S. Harrison, PFC Russell K. Hart, Cpl Ernest E. Hayton, Sgt Gerald W. Hobson, TSgt Donald D. Hofford, PFC Hershel M. Hogen son, PFC Frederick G. Holcomb, Sgt Edward J. Hyde, PFC Phillip R. Ianni, 2dLt Fred H. Iverson, 1stLt Harold R. Jack, PFC Winnie W. Jackson, TSgt Edward L. Knox, 2dLt Donald J. Krabbe, Capt Robert M. Krippner, SSgt Ellis F. Leamer, PFC Roger A. Lee and Sgt John E. Lindsey.

PFC George T. Lister, 1stLt Joseph W. Luker, PFC Richard F. McChesney, LtCol Robert K. McClelland, Cpl James H. McCrory, 2dLt Patrick T. McGahn, Jr., CWO William F. McMillian, 2dLt Francis E. MacDonald, Cpl Leonard J. Maffioli, Capt Thomas A. Manion, Capt Franklin M. Mayer, Sgt Daniel J. Miller, 1stLt Neil B. Mills, Cpl David C. Mortimer, Cpl Raymond M. O'Connor, Cpl Joseph F. O'Keefe, 1stLt Orville N. Olney and PFC Lloyd G. Phillips.



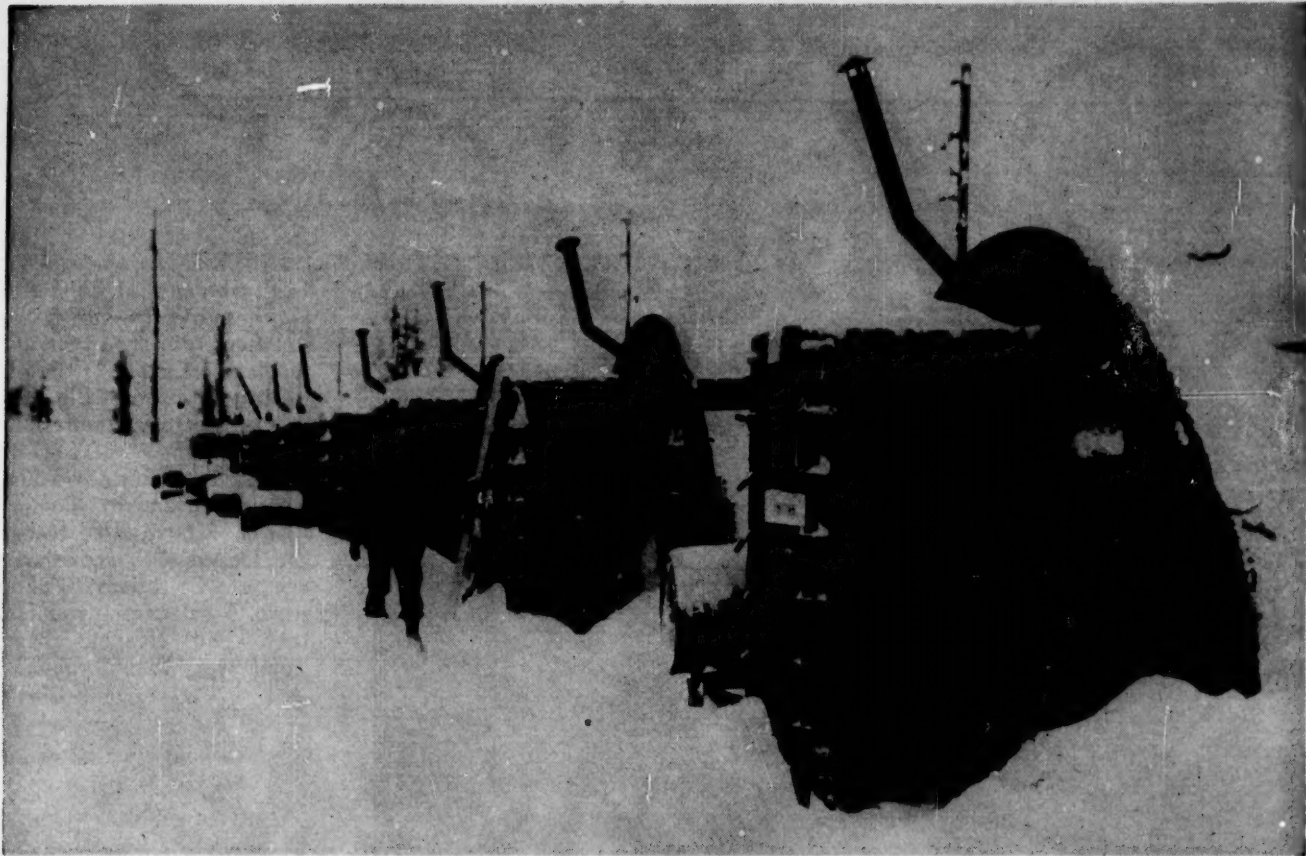
BL

DE

SE

Survival
tactics in imp

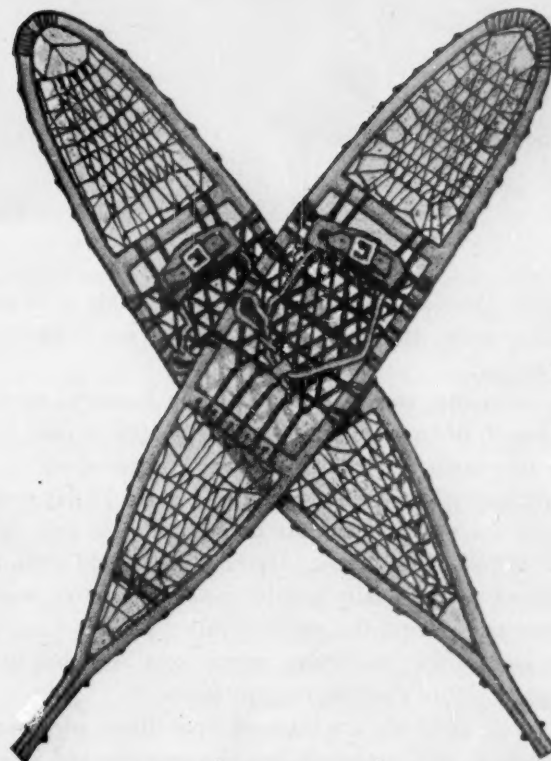




☛ WE WERE GREETED AT BIG DELTA WITH APOLOGIES for the "June in January" atmosphere prevailing. After flying 2,000 miles northwest of frigid Montana, we found the mercury here in the Tanana Valley region, the icebox of Alaska, hovering at the freezing point. Could this be the country that Jack London had written of 50 years ago: "A health to the man on the trail this night. May his grub hold out, may his dogs keep their legs, may his matches never miss fire."?

We were soon to learn that Jack London had not been guilty of overstatement.

Big Delta, located in the heart of the Tanana Valley region of Alaska, 105 miles southwest of Fairbanks, is the U. S. Army's most northerly post. It is surrounded by forested hills and windswept muskeg flats dotted with lakes and drained by the Tanana River, a tributary of the Yukon. The broad plateau of the Yukon Valley, typically sub-Arctic in character, is bordered on the north by the Brooks Range and on the south by the Alaska Range. Here are found the coldest winters and the warmest summers of Alaska. Temperatures ranging from seventy-five degrees below to 100 above have been re-



ABOVE: Jamesway huts with storm entrance of the type used at Alaskan base camps. **LEFT:** An Air Force group tests seat-type arctic survival kit at Chandler Lake, Alaska.

By LtCol Ronald R. Van Stockum



TOP: Students at Big Delta pitch tents in sub-zero weather during four-day problem. **CENTER:** Semi-permanent camp at Big Delta, set up in shelter of spruce stand. **BOTTOM:** Cooking on Yukon stove during maneuvers at Galena, Alaska. **RIGHT:** Sled-toboggan loaded with snowshoes, box of C rations, Yukon stove, 5-gal cans, pyramidal tent, and sleeping bags. Total weight: 500 pounds.

corded. Popular opinion to the contrary, this is an area of little snow, the annual precipitation being less than 15 inches.

This country was to be our home in January; most of the month to be spent out-of-doors. Shortly, a cold wave was to convince us that our initial impressions of an "early spring" had been premature. For a 10-day period during our stay, the mercury on each of eight days dropped officially to 50 below. During such a cold spell, five hours of sunlight daily had little warming effect, and in conversation about the weather (always a good topic at Big Delta) the modifying minus sign was habitually dropped before the temperature figure.

Special problems are imposed upon those who live in the field in such extremely low temperatures and in such a rugged and undeveloped part of the world. Protection from the cold is the keystone of survival.



It is the purpose of this narrative, based on personal experience gained at the Officers' Winter Indoctrination Course, to show how properly indoctrinated and equipped individuals can live and travel under such conditions. Obviously, combat magnifies the problems already existing; but survival, not tactics, is the topic at hand. A man must first know how to live before he can learn to fight in this type of country.

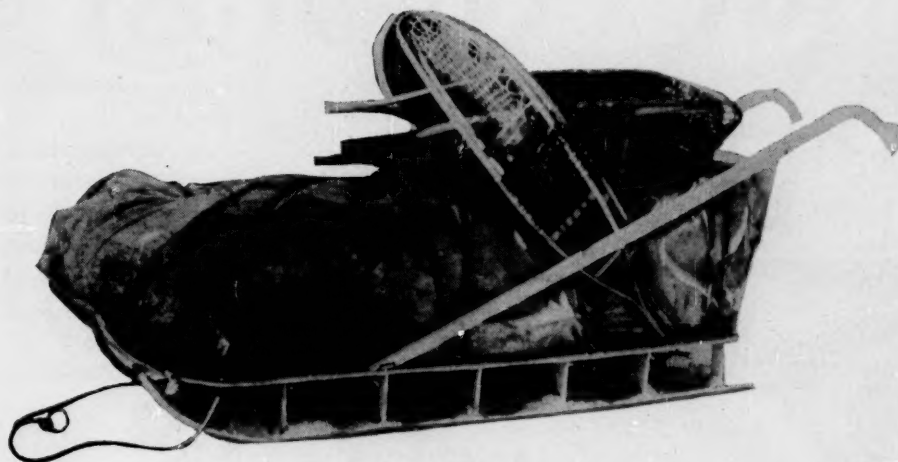
Shortly following our arrival at Big Delta, we were issued the complete arctic ensemble, pictured in the March GAZETTE. Upon receipt of this outfit, we were immediately impressed by one of the facts of logistics in cold climates: provision and care of the bulky clothing necessary to life.

This ensemble proved to be an acceptable solution. Even at 50 below, I found no need, while active, for the outer clothing. However, when not actively occupied, I found the outer parka and trousers essential, especially in a wind. The protection afforded the hands and feet is adequate provided they can be kept dry. The face is extremely vulnerable to frostbite, particularly when a wind is blowing or when an apparent wind is induced as in ski-jooring. However, by careful adjustment of the fur-trimmed hood for protection from the wind, I have ski-joored at 50 below without suffering ill effects. Such adjustment usually reduces the hood opening to a narrow slit, dangerously restricting the visibility, particularly so if the trail conditions are poor.

Individuals must continually check one another's faces when the temperature is low for the tell-tale whiteness of frostbite. Wearing a beard or a face mask, and thereby hiding these early indications, may be a dangerous practice leading to serious complications. The movement of a cold wind across a warm body has a similar effect to frostbite, by accelerating freezing. Wind at low temperatures adds so much to discomfort and danger that the mercury alone cannot be considered as a true criterion without comparing it with the wind velocity to obtain what is called a "wind chill factor."

At Big Delta we had opportunities to camp in the field in lean-tos and in the Arctic tent. Construction of snow caves, also on the schedule, was precluded by the lack of sufficient deep snow. Snow caves and snow houses (igloos) enjoy the reputation of being sturdy, well insulated, and easily heated.

Our class was to make history, for its members were privileged to build a lean-to and camp out-of-doors in temperatures exceeding 50 below, the coldest ever experienced in a bivouac in the history of the school. The mercury reached a low of minus 51 officially at Big Delta; at camp site, located in a hollow near a frozen lake, the temperature could only be estimated at somewhere in the middle minus fifties. The lean-tos erected were conventional in construction, with the added feature of being faced toward each other and separated by a log fire. This type of shelter accommodates eight men, four to a side. Gathering of sufficient spruce boughs for overhead cover and for the floors took several hours. In the still cold of the minus fifties, the fire favored neither side of the double lean-to, and dissipated its smoke and heat straight up into the night. In the interior of the shelter there was no noticeable rise in temperature. No



one slept warm. The cold of the ground penetrated the snow, the boughs (poor substitutes for air mattresses), and into the Arctic sleeping bags. Most of us were so tired, cold, and stiff the next morning that we lacked the ambition to prepare breakfast. Fortunately, we were headed back towards the base camp, only a few miles away.

Three individuals became incapacitated as a result of frostbitten toes, although, fortunately, treatment was early enough to arrest any crippling effects. One officer skied back to camp, a distance of six miles, the following morning, not realizing that he had two frostbitten toes. Most of these casualties stemmed from restricted circulation resulting from the crowding of too many socks in the shoes or from the excessive tightening of ski straps.

Had the base camp been more distant or the bivouac more protracted, the attrition would have been considerably greater. The lean-to as a shelter is not very



TOP TO BOTTOM: Arctic survival kit for airmen contains sleeping bag, canned-heat stove, .22 cal. revolver, mittens, goggles, flares, matches, wool socks, compass, water container, knife, and food packets. New type sled now being tested at Big Delta. Experimental one-man tent, utilizing lean-to principle. The M29C (Weasel) is ideal for snow, tundra, muskeg, and water; carries a two-way radio.

popular with the graduates of the Fifth Arctic Indoctrination Course.

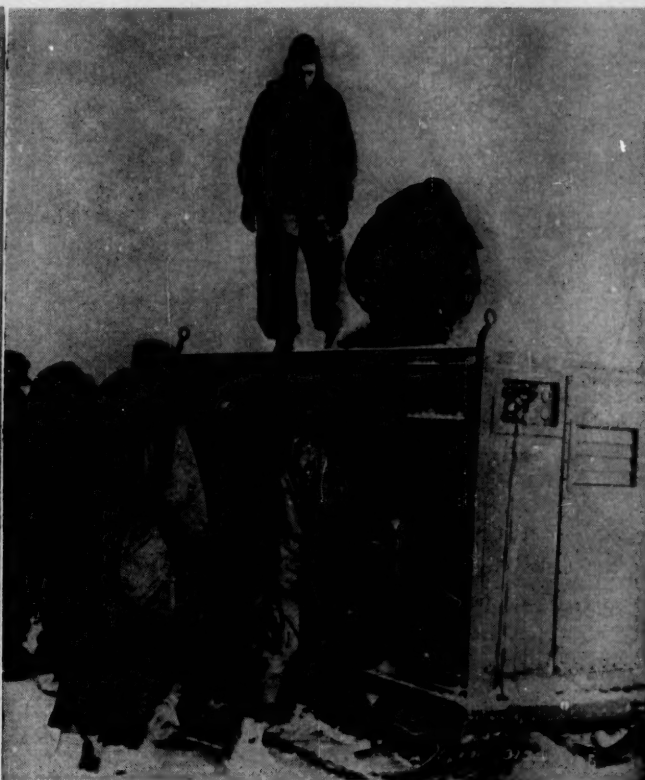
Groups operating tactically in extreme cold, especially if they are of relatively large size, should not be required to depend upon field expedients. We found that a satisfactory solution to the shelter problem is the Arctic tent, a pyramidal five-man double walled tent, heated by a Yukon stove. It can be erected by the occupants on any kind of terrain in 20 to 25 minutes. The Yukon stove, burning either gasoline or wood, heats the interior rapidly while at the same time providing ample cooking surface. Once inside, a person can strip off his outer garments, hang them up to dry, and eat a meal prepared by the duty cook. He can inflate his air mattress, warm up his double Arctic sleeping bag, and turn in while the tent is warm.

The duty cook, who is responsible for the stove, turns it out after all others have retired. Next morning, he turns over in his bag to light the stove, gets up, and prepares the breakfast while the tent is warming up. Indeed, the cook for the day, if he performs his job well, is a very popular man in his group.

Activities in the sub-Arctic must be carefully planned in advance so that essential items are not left at the base camp. Each tent group must set up its own SOP to insure that the bivouac can be quickly and properly made, with all tasks being carried out concurrently. Teamwork is a primary requisite; each man must contribute his share of the group's work.

Because of the extreme dehydration of the system resulting from several days' operating in the field, even in cold climates, it is particularly important to locate a bivouac near an adequate water supply. If streams and lakes are to be relied upon, it must first be determined that they are not frozen solid. If water is not available, ice may be melted.

If neither is available, a camp site should be picked near hardened snow which is better for melting than soft snow. The source of supply of snow should be marked off apart from camp activities to avoid con-



LEFT: Students at Big Delta set up communications center on Weasel. **Right:** Portable field kitchen on sled runners insures hot meals in sub-zero weather. **BELOW:** Heavy machine gun mounted on toboggan can fire at moment's notice.

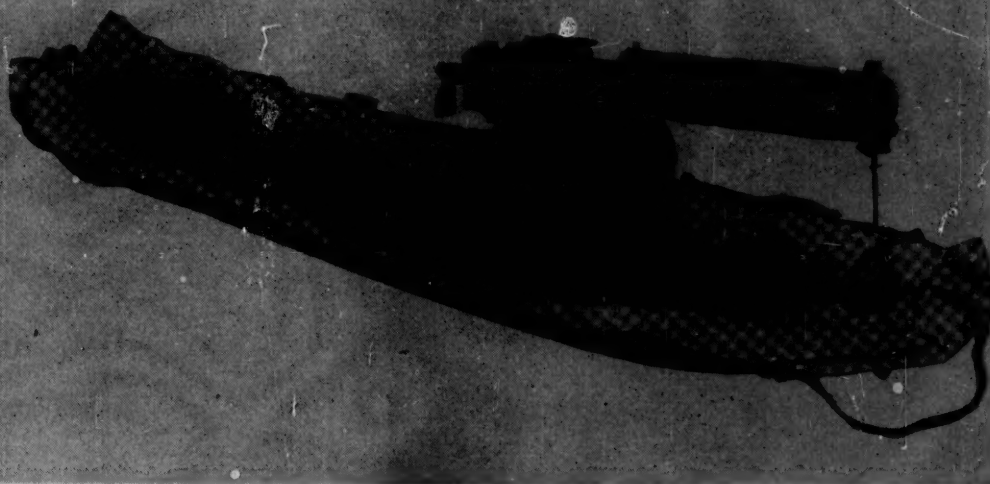
tamination. If any doubt exists as to the purity of the water, regardless of the source, it should be boiled or treated.

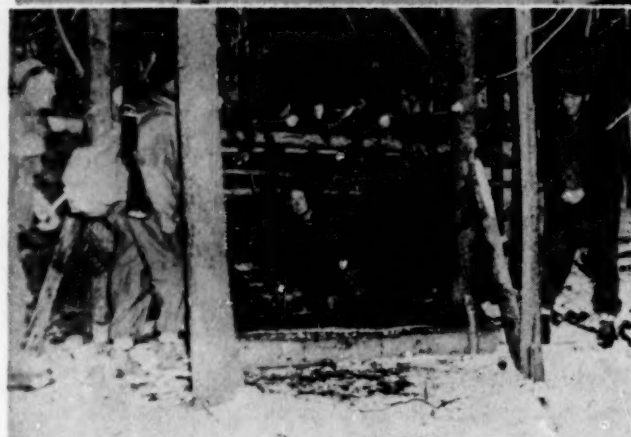
Field sanitation in the sub-Arctic is complicated by the impenetrability of the frozen soil in the winter. To encourage its use, a latrine should be protected by some kind of windbreak, located in close proximity to the tent group, and well marked. To avoid its being the site of a tent pitched in the future, it should be placed near a tree, rock or other obstruction. Garbage should be burned in the campfire and not thrown in the latrine as an attraction for foraging animals. The latrine should be dug as deep in the snow and ground as practicable and, when closed, covered with snow and marked with brush.

The problem of feeding in the extreme cold is difficult to solve. Cooking is a double process—before rations and water can be heated,

they must be thawed. If a heated shelter is not available, food, once cooked, must be eaten rapidly before it loses its heat. For people living in the field, the caloric content of the diet must be increased by about one quarter to allow for the excessive rate of loss of body heat.

To enable us to experience different methods of feeding, we were served the following types of rations in the field at Big Delta: field ration "A", Five-in-one (small





ABOVE: Troops deploy off trail during maneuvers at Big Delta. **LEFT:** (top to bottom) Preparing arctic trail ration during noon break. Building lean-to during overnight bivouac on the trail. Ski-joring behind Weasel is fast way to cover ground in the Arctic. Snow Weasel pulling loaded sleds at night on the trail.

detachment ration), "C" ration, and Arctic trail ration (experimental). The "A" ration was prepared at the base camp and brought out to the field in insulated food containers when a large heated shelter was available as a mess hall.

We prepared the Five-in-one ration at our lean-to bivouac and found it unsatisfactory in the extreme cold. It is a tasty ration with considerable variety, but the transfer from cook pot to individual servings results in an excessive cooling. It should be saved for use when a heated tent is available.

The "C" ration is better adapted to the improvised bivouac. The cans can be heated together in a cook pot and then handed to the individuals direct, thus serving as containers and as mess gear. Also, the sliced peaches of the humble "C" ration, if thawed only slightly, turn into a delicious sherbet.

The Arctic trail ration is an experimental dehydrated emergency ration. Light and versatile, it provides three meals, centered around a meat bar as piece de resistance. If fire and water are not available, an individual can suck snow and chew slowly on the bar. If a small Coleman-type, one-burner stove is available, or if any kind of fire can be built, a delicious dish can be prepared by chipping a meat bar into a canteen cup of melted snow and dried soup. This ration contains no water and therefore does not have to be thawed prior to cooking. Three snacks (raisins, chocolate capsules, etc.) are provided for consumption on the move, as a supplement for the basic meal.

Several items of equipment necessary to the survival

RIGHT: Troops, carrying snowshoes for use when encountering deep snow, return from long cross-country march at Big Delta. **BELOW:** Approximately twelve nine-dog teams would be needed to pull loaded sleds being towed by this Weasel.

of small groups of individuals in extremely cold temperature have been mentioned or implied in this discussion. These, in addition to clothing and miscellaneous personal articles, consist of the Arctic sleeping bag, insulating pad (rubber mattress), mountain cookset, one-burner mountain stove, axe, saw, machete, gasoline, and rations. In all, they constitute considerable bulk. How can they be transported cross-country to be made available to men in the field?

The M29C, an ideal over-snow vehicle, is the best answer to this question. It can tow a loaded one-ton sled and a squad of ski-jouring troops across snow fields, over rough, hilly terrain and through light woods with relative ease. But let us assume that our troops consist of four to six men—a tent group—operating independently behind enemy lines where use of a vehicle is impracticable. How will *they*, restricted by what they can pull or carry, take along this essential equipment

wherever they travel? Obviously, they cannot carry everything on their backs without making shuttle trips. The solution may rest either with the use of the sled-toboggan or the AHKIO.

The sled-toboggan is so-called because of its ready convertability into either sled or toboggan. Sled runners are extended for use on a broken trail or hard-packed snow, and collapsed to prevent “bellying up” in deep snow. The sled-toboggan, loaded with 300 to 500 pounds, can be towed by men on foot or on snowshoes, by animals, or by vehicle. A tent group—four to six men—can achieve considerable independence of base by pulling its equipment in a sled-toboggan, but movement will be



necessarily slow and tiring.

The AHKIO is a small boat-like contrivance which is superior to the sled-toboggan in negotiating difficult terrain, especially wooded hills. It is of relatively small capacity; hence, individuals must carry full-loaded rucksacks if they are to be accompanied by all the equipment enumerated above.

The rucksack consists of a canvas bag attached to a metal tubing, pack frame which distributes most of the weight upon the hips, providing the low center of gravity desirable for skiing. It can support a medium load of 30 to 50 pounds more easily than can the conventional military pack. When supplementing an AHKIO load, a rucksack might contain the following: Arctic sleeping bag, air mattress, two pairs of dry woolen socks, filled canteen wrapped in outer parka, rations, mountain stove, and a quart gasoline can.

At Big Delta, for our first bivouac we had a chance to pull both the sled and the AHKIO. After this experience, we were about equally divided as to the relative advantages of the one over the other.

In winter in the sub-Arctic, movement of individuals on foot is slow and difficult at best and feasible only on roads and trails cleared of snow or covered with packed snow. Effective cross-country movement is possible only if personnel are equipped with skis and snowshoes.

Snowshoes are of two basic types, trail and bear-paw, the former being long and narrow with a turned-up toe and the latter short, wide, and oval shaped. The trail snowshoe is better suited to long marches because of its greater flotation and the ease with which the toe rides over the snow. The bear-paw snowshoe, because of its lesser length, is more suitable for working around heavy equipment or vehicles. With snowshoes, an individual can traverse deep snow at a rate of one to two miles per hour.

The majority of our marches at Big Delta were made

on military skis—long, narrow skis attached to the shoes by leather straps. In the light snow we encountered, we experienced no difficulty skiing cross country and had little need for snowshoes. Inexperienced as most of us were, we quickly acquired sufficient skill to make speeds of two and a half to three and a half miles per hour when trail conditions were good.

Many of our marches were speeded and extended by ski-jouring behind an M29C (Weasel). Fortunately, we were not pulled by horses, for the combination of ski and horse would surely have proved fatal to me. A weasel can pull eight to 10 skiers at speeds up to 30 miles an hour, conditions of snow permitting. Over rough terrain and at low temperatures, ski-jouring can be difficult and tiring, as well as dangerous, but under favorable conditions is a rapid and comfortable method of travel. Routes followed by ski-jouring troops are obviously limited only by the skill of the skiers and the cross-country mobility of the towing vehicle.

An attempt has been made to indicate that the problems of survival and movement in the extreme cold are either solved or well on the way to solution. No effort has been made to introduce tactics into this discussion. The weather plays no favorites, and it is reasonable to assume that the better equipped and better indoctrinated individual will be better able to stand the test of combat under the climatic conditions discussed. He will have greater freedom of action in making his operations effective against the enemy and be better able to counter those operations directed against him.

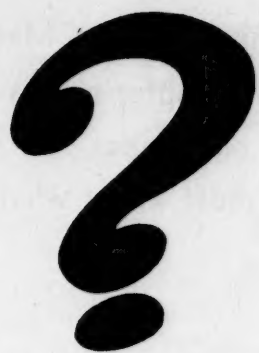
It is doubtful if any prospective enemy is better equipped than the American Marine or soldier to fight under sub-Arctic winter conditions. With the increasing emphasis upon combat in such climes, it is incumbent upon us to insure that the American fighting man has the indoctrination and training to match his equipment.

USMC

Dog teams are often used for air-rescue work. In emergency they can be parachuted to stranded flyers.



How Would You Do It



By LtCol Frank Mallen

☛ DURING THE OCCUPATION BY THE 5TH MAR DIV OF Camp Tarawa on the big island of Hawaii, I was commanding officer of the 2d Provisional Marine Detachment, responsible for the "housekeeping" activities of the camp, a job not unlike that of a hotel manager, whose mission in life is to make a home for his guests and keep them all happy.

Living in a pioneer status, there were many problems as well as complaints, but we met them head-on and in most cases dissolved them without undue difficulty.

But there popped up one that for a time had us all stopped—*chuck wagons*.

These Hawaiian editions of Coney Island hot dog stands on wheels appeared every night outside the main entrance to camp. It was a narrow road, without lights, and hazardous to traffic even under normal conditions. The chuck wagons, lining each side of the road with their flickering lanterns and lamps, constituted a real danger.

As though this wasn't bad enough, the Marines would crowd around them and practically monopolize the rest of the road, slowing the heavy truck traffic in and out of camp, and even endangering their own lives.

There were other angles to complicate the situation. Persistent division sanitation officers didn't like the idea of the men exposing themselves to whatever might result from eating hot dogs, hamburgers, and sandwiches sold from stands over which they had no supervisory control. Then, there were the regimental police officers, easily antagonized fellows. The wind would blow sandwich and candy wrappers, and even partially eaten food, all over their areas as if on purpose, keeping their forces constantly busy cleaning up somebody else's refuse. (That was tantamount to an insult.)

I got busy. An appeal to civilian authorities was graciously received, but they pointed out with firmness that the chuck wagons were duly licensed and the road was a public one, so nothing happened there. Next, a visit to the health authorities. This from the sanitation standpoint. They advised me that they were confident the

chuck wagons, also licensed by them, were conforming to their regulations, and if we had proof to the contrary, they would obligingly act. A conference with the police about the traffic hazard disclosed they had available but one officer in the entire civilian area and he had his hands full as it was.

I did what I could. I assigned MPs to keep the road clear. But while they were chasing men off the road at one point, another group would appear behind them. I placed GI cans around the chuck wagons as tastefully as people put out flower pots. But the aim of the men was disappointingly bad, particularly in the dark. I reduced the prices of sandwiches at PXs to 10 cents each, in the hopes our always-hungry Marines could assuage their appetites there. But they preferred to pay 25 and 30 cents to chuck-wagon girls for a couple of slices of bread with much less ham, cheese, or meat than we offered. Come dusk and they even seemed allergic to our lower priced ice cream, pop, and cigarettes.

Just what would you have done? I finally came up with a solution that worked, and am interested in knowing if there could have been others. Here it is:

I told our police officer to invite the chuck wagons into camp and assign them to certain areas, away from each other, so that competition, with the resultant hawking for business, would be cut down. They thought this was a wonderful idea inasmuch as each night they had to jockey for position along the road in their rivalry to outdo one another. Once we got them inside camp it was easy to lay down the law.

1. They had to agree to inspection by camp sanitation officers.

2. They had to leave when call to quarters was sounded.

3. They had to police their areas before leaving.

They gladly cooperated and our camp life settled down to routine, with life and limb again safe beyond our front door after shadows fell.

USMC



ABCs

Thanks largely to Marine Corps development, the helicopter now is an integral part of military equipment. In order to best utilize it, you must know what it can and cannot do.

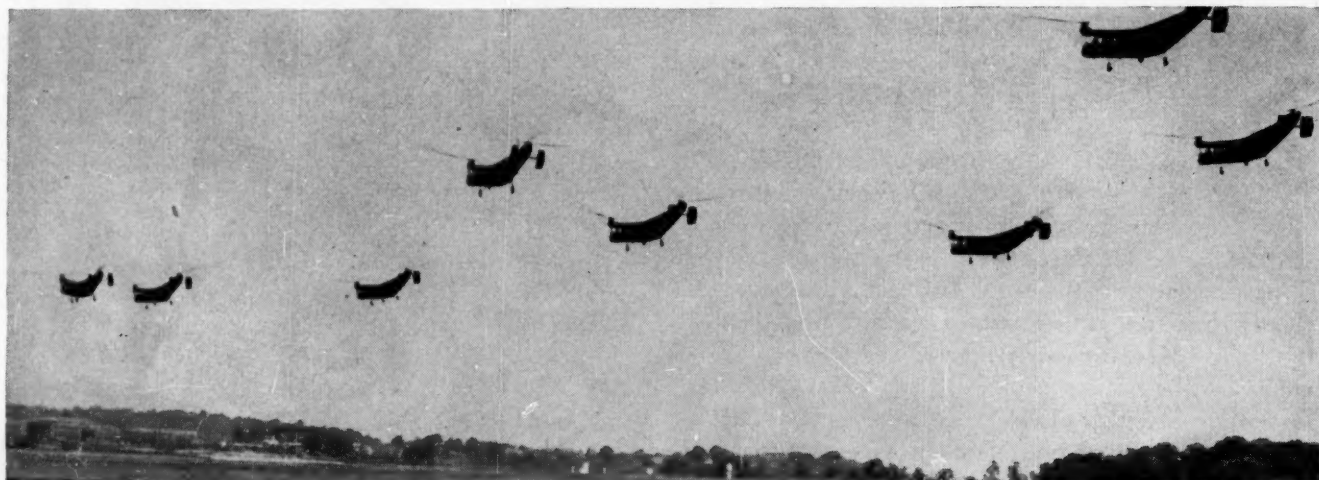
of HELICOPTERS

By LtCol K. B. McCutcheon

♣ EVERYONE HAS PROBABLY HEARD THE STORY BY NOW of the general, overseas, who solved his problem of how to get a line through the top pulley of his flag pole by using a helicopter. Not so well known may be the use to which a California farmer put a helicopter, harvesting nuts by flying the helicopter low over the trees and allowing the down beat of the rotor slipstream to blow the nuts to the ground.

It's hard to say where this Californian got his ingenuity, but he may have dreamed up the idea from the popular expression, applied to these relatively new rotary wing aircraft, of "infuriated palm tree."

All of which leads up to the point that the helicopter appears to be here to stay and that it is quite a versatile vehicle. But, actually, what is a helicopter? How many types are there and what can they do? And not do?



Helicopters belong to the overall field of aircraft and in particular to the rotary wing species of the heavier-than-air classification. Airplanes belong to the same classification but are part of the fixed-wing species, or, as helicopter pilots refer to it, "frozen wing". The rotating airfoils or rotors experience the same kind of lift and drag forces of a fixed wing and serve to keep the craft sustained in the air.

Helicopters should not be confused with autogyros, however, which are also rotary wing aircraft. The fundamental difference lies in the method of turning the rotor. In a helicopter the rotor is coupled to an engine of some kind, reciprocating or jet, and the engine provides the source of power for turning the rotor. In an autogyro this is not the case. The rotor is independent of a power plant. It turns because of aerodynamic and gravitational forces which necessitate the use of a conventional engine and propeller to move the aircraft in order to set the rotor in motion. The autogyro is not capable of true hovering nor of absolute vertical ascent or descent. It

OPTERS

can, however, descend or ascend at steeper angles than a true fixed-wing aircraft and it can fly at slower airspeeds, and it doesn't require much takeoff or landing run. But a helicopter requires no run, neither on takeoff nor landing.

Hovering is the most outstanding characteristic of the helicopter. The ability to remain motionless over a spot on the surface of the ground or water, coupled with the ability to fly vertically, permits the helicopter to do many things that no other present aircraft can. Its development in the past ten years or so has been one of the truly great advancements in the field of aeronautical science. Not as spectacular as that of the jet or of guided missiles but just as important.

It wasn't too many years ago that the top speed, cruis-

LEFT: Piasecki HRP's airlifting a Marine unit during maneuvers. **RIGHT:** (top to bottom) Sikorsky HO3S-1 currently in use by the Marine Corps. Bell Aircraft HTL-2 is two-place machine for observation and liaison work. Sikorsky R-4 helicopter has been adopted by Army.





TOP: (left) Three passenger Kaman HOK-1. (right) Sikorsky HO4S for Marine VMO squadrons. **CENTER:** (left) XR-15 designed for Army. (right) Sikorsky HRS-1, Marine transport helicopter. **BOTTOM:** Kaman helicopter has two rotors.

ing speed, and stalling speed of aircraft were all in a fairly narrow range. Tremendous emphasis has been placed on raising the top speed so that as of today the sonic barrier has been breached and planes have flown ten times or more faster than their stalling speed. Concurrent with this raising of the top speed has been the lowering of the low speed until now we have the helicopter that flies at zero speed, or, if you prefer, with negative speed because it will also go backwards.

The amazing part of it all is that it took so long to do it. Leonardo da Vinci, a couple of centuries ago, made his fame primarily as an artist but he was also a sculptor, writer, architect, inventor, engineer, physician, and general jack-of-all-trades. In his many sketchbooks were found drawings of propeller and rotating wing devices which embodied the principle of the helicopter. Sketches were also found of flapping wing devices and of parachutes. Apparently he built several models and even designed man-carrying types but never found a suitable

power plant as there is no record of his constructing any. In general, though, he is credited as being the inventor of both the parachute and rotary wing.

Centuries passed and it was not until the period of 1918 that any substantial progress was made. In 1919, Juan de la Cierva built an autogyro using hinged, flexible blades to adjust the blade angles with speed in rotation to prevent dynamic unbalance in flight. This was really the first practical idea.

Eighteen years later, in 1937, Dr. Heinrich Focke flew a helicopter in Germany. Focke utilized an invention of two other Germans, Walter Rieseler and Walter Kreiser, for controlling the blade angles at any point in the rotation.

From that point on there were many successful efforts. Igor Sikorsky, Frank Piasecki, and Stanley Hiller are among the several who have pioneered and then successfully followed through to produce in quantity.

Just as there are many variations in aircraft so are

there many configurations of helicopters. One of the commonest ways of designating them is by the arrangement of the rotors.

The most common type is probably the single main rotor, single tail rotor design characterized by the Sikorsky HO3S and the Bell HTL, both of which are in use now by the Marine Corps in Korea. The tail rotor is mounted vertically in the rear and is necessary to counteract the turning effect or torque of the main rotor and engine. The basic design is relatively simple as the control problem is not too complicated, and there are no major transmission problems nor interference between blades and rotors.

The dual rotor installation of the Piasecki HRP or "Flying Banana" is another common type familiar to most Marines. In this design the rotors are in tandem, one behind the other, and they rotate in opposite directions to eliminate torque. The fore-and-aft center of gravity problem is not critical and the helicopter can readily be loaded or unloaded without adjusting equipment or ballast to compensate, as may be required in a single rotor ship. Sometimes it is very embarrassing for a pilot in a single rotor job to drop a couple of passengers and then ask them to pick up a couple of large rocks as payment for him to carry back. They might get the idea the pilot had the rocks in his head instead of needing them for ballast. No similar problems in the tandem. Instead the transmission problem is greater.

Another dual arrangement is in the side-by-side design exemplified by the McDonnell XHJD-1. Transmission problems are still present but the lateral control is good. By moving the side-by-side rotors closer together so the blades actually interlap as in the Kaman you have a

synchropter. Moving them still closer until they are both on the same shaft you have a coaxial design of which the Gyrodyne helicopter is an example. Other designers have used three rotors in triangular arrangement and still others have tried more unusual schemes, but the ones mentioned above are the more conventional in the field today.

It won't be long before jet-type helicopters are as common as jet fighters. Many of the present day designers are well ahead in the development of helicopters employing turbo, pulse, and ram jets. One such project is the "Little Henry" of McDonnell Aircraft.

Regardless of the exterior appearance all helicopters can hover, they can rise and descend vertically, and they are ideally suited for landing and taking off from small, restricted, and unprepared surfaces which are totally unuseable by other aircraft and may be even inaccessible to foot troops.

The helicopter can fly under lower weather minimums, as far as ceiling and visibility are concerned, than most combat and transport aircraft and still navigate by visual reference to the ground. This is not to say that they can't operate under instrument conditions. They can. Los Angeles Airways is doing it and all the services have done it to a more limited extent. The same goes for night flying. On any but the blackest nights it is no particular strain to fly a helicopter, if you have some few scattered lights to give a horizon reference. On totally dark nights instrument flying must be resorted to.

Helicopters can be and have been equipped with wheels, floats, skids or skis. And they can be operated from any kind of a ship as long as the ship can provide a large enough platform for the helicopter to land on. Helicopters can and do have air-to-ground communications in the form of VHF, MHF, and FM. There is no reason why they can't be armored or even armed. No special training is required for troops to be transported by helicopter as in the case of paratroopers or glider troops.

This is an impressive list of capabilities but in rebuttal it is only fair to point out that there is also a list of limitations. Many of them, to be sure, are of a transient or temporary nature due to the newness of the helicopter and will be overcome or at least greatly minimized in the next few years with the many technical improvements and innovations that are under development.

Instrument flights are an example of the helicopter's limitations. It is possible, as stated above, but it is not yet common practice. Steady improvement is being made in this direction and the better instruments and automatic pilots, already well in the test stage, will go a long way to eliminate this deficiency. The same thing can be applied to night flying.

One of the larger problems is maintenance. Mainten-



ance will never be eliminated but it will be reduced through training and experience and by making spare parts more readily available. Improvements in design, in simplification of transmission systems, the introduction of jet type engines, and the application of new materials and techniques will all assist.

Helicopters are fatiguing to fly. A pilot has to keep both hands occupied most of the time so it is no place for a chain smoker. Here again automatic pilots will help out. Vibration is a big problem. It will probably always be present but experience will assist designers in reducing it considerably.

Helicopters are expensive. They do and probably will continue to cost about the same per pound of empty weight as aircraft of the conventional kind, that is, about \$10.00 to \$30.00 per pound depending on the size of the order. Production in quantity may tend to reduce this figure but technical improvements in the line of instruments, pilots, electronics equipment, and other gear will tend to keep it up.

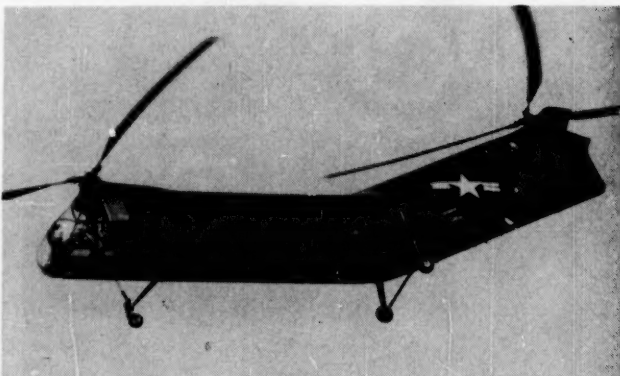
Level flight speed forward is not high. Probably it will not exceed 160-180 knots for a pure helicopter. With stub wings fixed, higher speeds are possible, and by designing a combination fixed-rotary wing aircraft the sky may be the limit. Such an aircraft, be it called

a rotorplane, convertaplane, or anything else, is not too far off. With sufficient financial backing any present manufacturer in the field would probably be ready to undertake the task.

Last but far from least, performance is critical. Perhaps it would be more correct to say that appreciation of performance is critical. The helicopter won't do everything and if employed unintelligently it is inefficient. This is particularly true with regards to load carrying ability. To understand this a few definitions are in order.

When a helicopter is built and fully assembled and wheeled off the production line it weighs some definite amount. This, logically, is known as the "empty weight." By adding oil, gas, a pilot, possibly some other crew member, cargo and passengers the plane is ready for takeoff and its weight then is referred to as "gross weight." The difference between the two, gross and empty, is the "useful load." Useful because every item included in it serves a definite purpose. Part of this useful load is necessary to operate the aircraft. The rest of it is not required to operate the craft but is carried to a destination for a purpose and in commercial operations would have to pay its way, hence the term "payload."

TOP: (left) Navy's XHSL for anti-sub work. (right) Piasecki XHJP-1 has top speed of 131 mph. BOTTOM: (left) McDonnell twin-engine XHJD-1 is world's largest helicopter. (right) HRP-2, refined version of HRP-1, has aluminum skin.



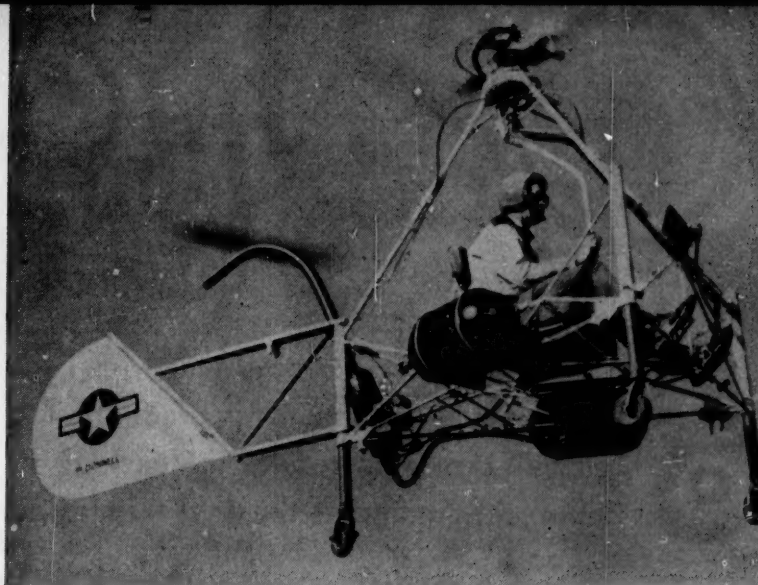
If it is desired to transport ten fully equipped combat troops in a helicopter that has a maximum useful load of 3000 pounds and each trooper weighs 225 pounds, only 750 pounds are left for the oil, gas, and pilot. If the pilot tips the scales at 200 and the oil and special equipment adds another 100, then only 450 pounds remain for gas. This is 75 gallons. Knowing the cruising speed, fuel consumption for that speed, wind direction and velocity, atmospheric temperature and pressure, the distance over which these troops can be carried can be calculated.

In normal operations, however, the problem is usually worked in reverse. You know where you are, where you want to go, and how to get there, so you have to figure out how much fuel will be required to do the job, add a little for safety, add the weight of the oil and pilot, and finally you arrive at the weight of personnel that can be carried. In present helicopters a difference of 20-30 miles one way can make a significant difference. Possibly one man more or less.

You might ask why can't you up the gross weight? It is possible to keep adding weight to the helicopter so that a weight is reached at which the aircraft will not rise vertically and hover. Why? Because there isn't enough power in the aircraft to lift the load. Same principle exactly as loading an infantryman down so much that a point is reached when he just can't walk. At this point the 'copter may make a run for it and pick up speed and finally stagger into the air. This is accomplished at the expense of its primary capability, vertical flight.

Designers usually limit a helicopter's weight to some total gross that will still permit the machine to rise vertically at some given rate, say 300 feet per minute. This weight is then referred to as the "maximum gross weight." In addition, a lower overall weight known as "normal gross" is calculated which will permit vertical climb at a higher rate, say 800 feet per minute. All of this is under sea level conditions, too. Altitude takes its toll in two ways. It affects the output of the engine and it reduces the lift forces on the blades of the rotor.

Knowing these limitations, the capabilities can be utilized in a number of ways. For military purposes the Marine Corps can use the helicopter for transportation of troops, both combat and administrative; transportation of supplies, equipment, and materiel; evacuation of wounded, prisoners of war and agents; rescue; observation, reconnaissance, and spotting; laying wire; displacement of command posts; insecticide and DDT spraying; mapping and survey work; UDT operations; anti-submarine warfare; radiation survey; bridging operations; heavy lifts over short distances as a flying crane; traffic direction and control; mail, courier, and messenger service; and probably in the future for many



McDonnell "Little Henry" jet type helicopter.

more purposes such as clearing minefields and as an anti-tank weapon.

Based on these missions the Marine Corps has foreseen the need for three types of helicopter units: an experimental squadron, HMX-1 based at Quantico; VMO squadrons for all around utility purposes; and HMR squadrons for transportation.

The designation VMO is not new. The composition of the squadron will be. Based on practical experience in Korea these aviation units will operate both fixed-wing and rotary-wing aircraft. Although composite in nature the designation "V" will be retained, at least for the time being.

The HMR squadrons are new. The first one was commissioned on the West Coast in January of this year. As the "H" indicates, they will be strictly rotary wing squadrons and their primary mission will be transport as shown by the "R". The "M", of course, means Marine Corps.

The helicopters that the Corps is procuring for these units are the HO5S and the HRS, both designed and built by Sikorsky. The HO5S is a military version of the S-52 and is to be assigned to the VMO squadrons. It has an empty weight of about 1650 pounds and a maximum gross load of about 2700. The HRS weighs in the neighborhood of 4800 pounds empty and will carry a maximum useful load of about 2600 pounds.

The development work which the Marine Corps has done over the past three to four years has now reached the stage of fruition. The helicopter won its spurs in combat in Korea and has made itself indispensable. As Gen Silverthorn stated before a Congressional committee last fall, "Of all the lessons learned in Korea, the one new lesson was the practicability of the helicopter in combat."

Or, as Gen Shepherd said, "There are no superlatives adequate to describe the general reaction to the helicopter."

USMC

Find The Gimmicks

By TSgt C. R. Barrow

Hill of tobacco fame used L.S./M.F.T. to make people remember his product. You can get the same results in teaching by finding the gimmick—the right training aid

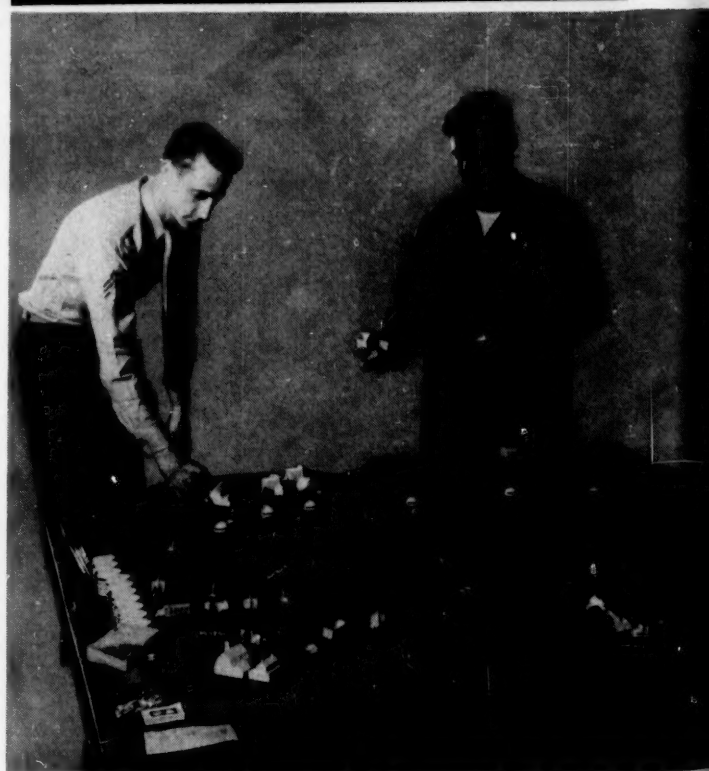
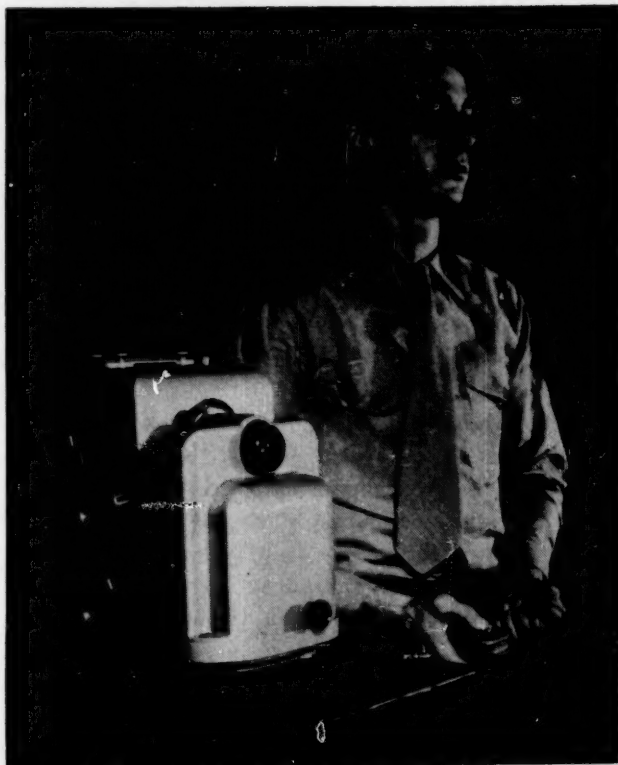
• LEGEND HAS IT THAT VICTOR HUGO, ANXIOUS TO learn whether or not his newly completed manuscript was suitable for publishing, attached the following on a full sheet of paper: “?”. Shortly thereafter, he received a reassuring note from his publishers: “!.”

The punctuation tells the story.

The training aid should be considered as the exclamation point of military teaching. Like Hugo's answer, it should be short enough to tell the story and clear enough to dispel all doubt. But, unhappily, that is not always the case. Too often, instructors hastily preparing lectures on subjects they themselves are thoroughly versed in, flip rapidly through their outline and mark every other page with a check somewhere along about the third paragraph. Those checks signify the spot where a training aid will be interjected. This vague, haphazard approach to the use of training aids is tending to minimize their effect on the student. An effective aid is not devised to “break up” a lecture. Nor is it to be employed to “wake up” the student or stimulate his interest. These are rather the by-products of this versatile method of teaching. The primary function is to *emphasize* a point or points under discussion.

• THE TRAINING AID should fairly shout, “*This is important—remember it!*”

George Washington Hill left his mark on every man, woman, and child in this country with a pack of butts. It wasn't the cigarettes themselves so much as what he said about them. And it wasn't so much what he said, as how he said it. Hill pioneered the beat-'em-to-death-with-it, sickeningly repetitious type of advertising for his cigarettes. Every paper you picked up, every magazine you read, every billboard you passed seemed to shriek at you, “L.S./M.F.T.” And so long as you live you'll remember what those initials stand for. Hill had found a gimmick! A way of making people remember what he said. His reward was in the merry tinkle of cash registers



from coast to coast.

This writer remembers a class in an Army Intelligence school six years ago. The subject was the bone-dry, "Aerial Photo Interpretation." The particular phase of the lecture under discussion was how to distinguish objects on the ground. The instructor told us to put away our pencils and pay close attention. He told us the way to do it was by judging them according to Size, Shape, Shadow, Tone, and Relationship to known objects. I grabbed for my pencil knowing that at the end of the course I'd probably be asked that question. But before I could write a word he was droning on in a monotonous drawl, "Take the first letter of each of the words—'S,' 'S,' 'S,' 'T,' 'R,'" and while we listened in awed fascination he chanted the five letters with the same inflections a high school cheerleader might use in giving the famous Locomotive Cheer; he repeated the five letters over and over again until the increase in tempo finally slurred the

LEFT: New slide projector. Cylindrical magazine holds 30 slides which can be changed by remote control. **BELOW LEFT:** Terrain model kit with foam rubber terrain and plastic models. **BELOW:** A-Bomb models showing stages of underwater explosion. Scale: one foot equals 500 yards.



letters together into the word, "sister." And then he stopped and smiled. "See," he added triumphantly, "just think of the word 'sister'—easy word to remember; everybody's either born with one or marries somebody else's." He too had found a gimmick!

AND RIGHT THERE is where the training aid realizes its strongest potential—in driving home the gimmick.

Yet, one out of every three instructors will tell you it is virtually impossible for him to dream up that elusive little gimmick so vital to the selling of his subject. He will tell you he just doesn't have the imagination for it. You'll probably note that he's generally the same type of person who claims he never forgets a face, but just can't remember names. Anybody can train himself to remember names and anybody can train himself to find the hidden little gimmick which can sell the driest subject for him. All that is required is the full realization of the importance of both.

Thoughts are intangibles. But if you can trap one with a gimmick and then proceed to pound it into the student's mind with the help of a training aid, you've really accomplished something. If you can plant three or four thoughts a day, your success as an instructor is assured.

The experienced instructor instinctively knows what is getting through to his students and just where the "thousand-yard stare" sets in. If his instincts are erring, his critiques, practical application, and tests will fill in the gaps. Then, armed with this knowledge, he can take steps to bridge the mental vacuum.

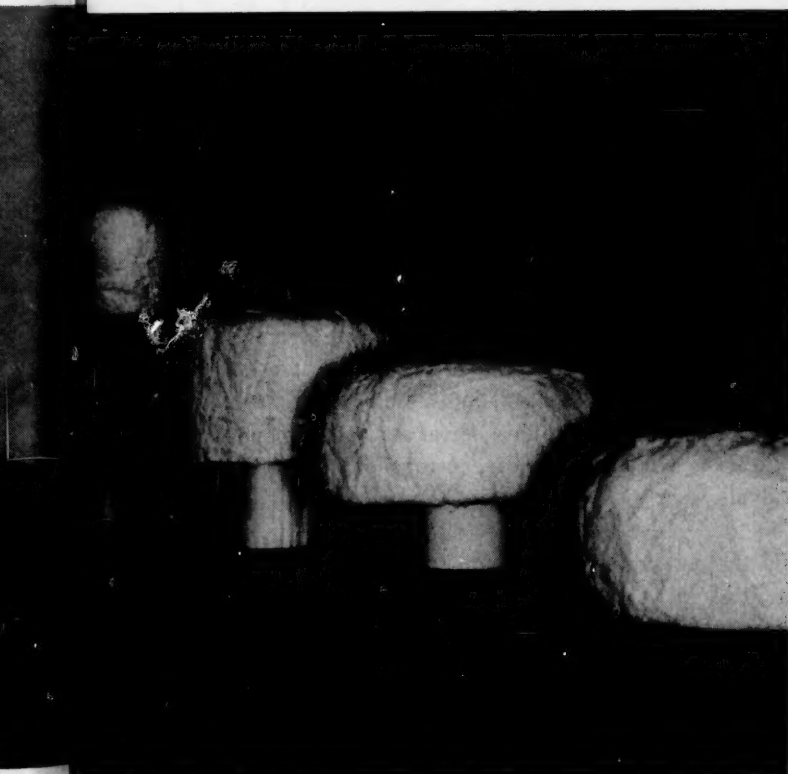
The inexperienced instructor must either rely on experience acquired by other instructors or cultivate the friendship of a training aids NCO.

The cardinal rule then, for experienced and inexperienced alike, in the teaching of an unfamiliar subject should be:

- (1) Find the gimmicks.
- (2) Design the simplest training aid possible to exploit those gimmicks. (Maybe they've got just the thing you need already designed.)

The same meticulous attention should be devoted to the selection and application of training aids as the conscientious instructor would normally apply to the lesson plan itself.

USMC



Passing in Review

BOOKS OF INTEREST TO MARINE READERS

1950 in the News . . .

NEWSWEEK'S HISTORY OF OUR TIMES—Vol. II.
Covering events of 1950. By the editors of Newsweek.
611 pages. New York: Funk & Wagnalls. \$6.00

Here is a book every Marine Corps public information office, commanding officer, recruiting office, and library should have on the book shelf. As a reference of 1950 news, it's superlative. As a chronicle of most recent history, it's jam-packed with fact and color.

You'll read this one far into the night, for 1950 was dramatically historic. Written by 21 *Newsweek* editors, it has been skillfully crafted to give the necessary impact.

The result is a clear, crackling panorama as it patterns those 12 crucial months. It presents a word picture of Communist aggression; of medicinal and atomic progress, plus some 300 other fields of national and international concern.

The PIO and staff will revel in the review of press activity—the news that terrified refugees, streaming into Seoul on June 24, brought first word of Red invasion at the 38th Parallel.

By 8:33 EDT that evening, Jack James of the *United Press* had sifted fact from rumor and flashed the first “general attack” story.

When AP's Hal Boyle was leaving for Korea, says *Newsweek*, he was briefed on how to cover the war by Bill White of the *New York Times*. Later, White received a cable from Boyle: “They are shooting at me from the left flank. What do I do now?” White cabled back, “Show 'em your press card which states you're a non-combatant.”

The book features the story of the year—The Korean War—a vivid account of the invasion of South Korea, UN intervention, the landing at Inchon, the race through

Seoul over the 38th Parallel, the destruction of North Korean armies, and then—Chinese Communist intervention.

You'll also find detailed coverage of the attempted assassination of President Truman, the abdication of King Leopold, the Fuchs' spy trial, the Brink's robbery, the Schuman Plan, the Truman Plan, flying saucers—hours of interesting reading.

The material is not a *republication* of that originally appearing in the pages of *Newsweek*. It is a completely rewritten account seen in perspective by news experts.

Reviewed by Sgt Lawrence M. Ashman

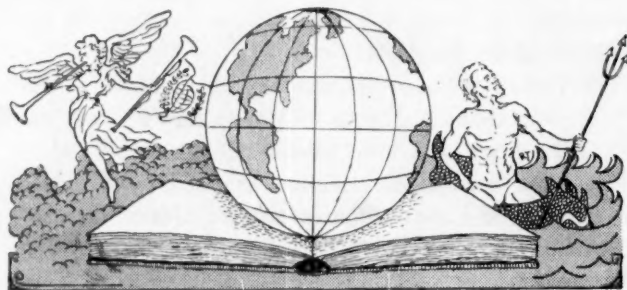
Naval Encyclopedia . . .

THE NAVAL OFFICER'S GUIDE—RAdm Arthur A. Agerton, USN (Ret). 648 pages, illustrated. New York: McGraw-Hill, 4th Edition. \$6.00

The author put together what might truly be called an “encyclopedia” for the use of all naval officers. He has drawn upon his own experience, the experiences of many other naval officers, on some 37 official publications, 14 other publications, and 16 periodicals in assembling the information contained in the book.

He begins by laying a background based on the present world situation and the challenge that Communism has made to our free world. The next chapter deals with unification and the organization of the Armed Forces of the United States as laid down in the National Security Act of 1947. This chapter is the largest in the book, some 144 pages, and goes into considerable detail concerning all the services. The author then takes up in turn the education of candidates for naval commissions, education for command responsibilities, orientation, assumption of command, and the line officer. Later chapters deal with an operational naval staff and its function, military courtesy and honors, customs of the service, pay and allowances, and military law and naval discipline. The final chapters on the responsibilities of leadership and the maxims of naval leadership are excellent.

Although primarily written for the naval officer, the chapters mentioned above should indicate the *Naval Officer's Guide* is a valuable source of information for Marine officers as well. The anecdotes the author uses through the book are laid to naval situations, but the principles pointed out are certainly applicable to situa-



tions in any service. The book although based on many official publications, unlike most of them, is fresh, interesting, and most readable. Changes in the organization of the government, new laws, the new Navy Regulations, and the world situation have made the 1944 edition of this book dated. This new book has been completely revised and rewritten and is right up to date; for example, it considers the Korean War, and the chapter on military law and naval discipline is based upon the new Military Code and Manual for Courts Martial, United States, 1951. Fear not, it does not read like the Marine Corps Manual or Navy Regulations. The book is profusely illustrated containing some 85 illustrations.

RAdm Ageton knows "whereof he speaks" for he has had many years experience in the Navy and a very close association with the Navy since his retirement.

Reviewed by LtComdr O. W. Price, Jr.

Spies—Fom Rahab to Fuchs . . .

EPICS OF ESPIONAGE—Bernard Newman. 270 pages. New York: Philosophical Library. 1951. \$4.50

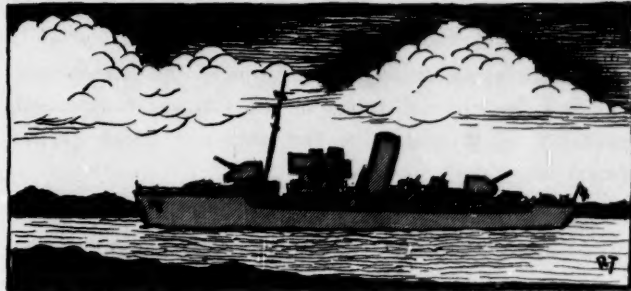
In the annals of Napoleonic history the battle of Ulm stands as a bitter defeat for Austria. The Corsican baited the trap and Marshall Mack's Austrian Army paid the penalty. In all fairness, however, Napoleon should share credit for this victory with one Karl Schulmeister, Chief of Intelligence for the Austrian commander—for it seems that this Schulmeister was in fact a French spy. Later this same man attended the highest councils of the Austrian and Russian leaders. Austerlitz echoed the genius of Napoleon—but again it was the hand of Schulmeister who tipped the scales in favor of the French in this decisive battle.

From Rahab the harlot of Jericho to Fuchs the traitor of Britain, history has been influenced by a trail of spies. *Epics of Espionage* provides a fascinating selection of true stories starting with Biblical times and ending with today.

While the tales themselves make for entertaining reading, the comments of the author awaken the reader to the dangers surrounding our present form of life. Thus if one is interested in pursuing the adage that truth is stranger than fiction, this book provides amusement as well as instruction. Unfortunately the brevity of the

book makes it impossible to fill in the details. Readers who enjoy the "who dunit" and similar type tales have become accustomed to a wealth of minutiae. Mr. Newman's book tantalizes and reveals but—not enough. In compensation it must be noted that a reading list of 32 books on espionage is included at the end of the book. The merely curious as well as the amateur student will thus be able to pursue the subject to his taste.

Reviewed by LtCol V. J. Croizat



H.M.S. *Amethyst* . . .

YANGTSE INCIDENT—Laurence Earl. 240 pages. New York: Alfred A. Knopf, 1951. \$3.00

H.M.S. *Amethyst*, a frigate with a main battery of 4-inch guns and 183 men, was steaming up the Yangtze River toward Nanking on April 20, 1949. To say the least, her position was precarious. The south bank of the river was dominated by the Chinese Nationalists. The north bank was swarming with Communists preparing men and artillery for an amphibious crossing. The Communists had issued an ultimatum; unless the Nationalists agreed to an unopposed passage of the river, the Reds would open a full-scale offensive on April 21.

The *Amethyst* was in hope of reaching her destination, with the consent of the Nationalist government then recognized by Britain, before the expiration of the ultimatum.

However, at 0830 hours on the 20th, the frigate was under fire from Red batteries. Union Jacks were unfurled on the ship's sides. After 12 rounds, fire ceased. The *Amethyst's* unloaded guns did not return the shelling. An hour after the initial battery had opened fire from shore, another opened up on the frigate, scoring direct hits. Though the British returned fire this time, it was to no avail. Their fire control system was damaged and the ship ran aground on one of the shifting banks of the treacherous channel. By sundown, one-third of the frigate's crew were casualties, her commander was severely wounded, her guns were out of action, and the ship ordered abandoned.

Other British vessels tried to rescue *Amethyst* from her grimly dangerous position. The *Consort*, another frigate, came down from Nanking, but under the murderously accurate Red fire she could only continue down the river.



This different naval war on the Yangtse provides numerous sidelights on the Chinese Communist attitude toward the West.

The author skips the diplomatic complexities of his subject and doesn't dwell very deeply on the Communist motives. His paramount concern is with the men thrust suddenly into action. He follows individuals through the crowded confusion of shelling and the ship's abandonment.

Earl presents an impressive tribute to human courage—to the Royal Navy.

Without losing vision of these things, the reader may still find the unusual facets of the Chinese Communist mentality as studied from the shell-torn decks of the *Amethyst*.

Reviewed by Sgt Lawrence M. Ashman



Through Georgia to the Sea . . .

THE GENERAL WHO MARCHED TO HELL—Earl Schenck Miers. 349 pages. New York: Alfred A. Knopf, 1951. \$4.50

You'd guess by the title that *The General Who Marched to Hell* is a biography of William T. Sherman. And you'd guess wrong. He's the central figure, all right, but the book is really a narrative of the famous—or infamous if you take that viewpoint—march through Georgia to the sea.

In the introduction, author Miers says he has tried "to capture from contemporary records, or from as near-to-the-moment records as exist, the moods and motivations of one of the unique episodes of American history," and that in doing so he has been "more concerned with the impressions of facts than the facts themselves." This technique makes the book of doubtful value to the military student seeking tactical instruction, or insight into a great leader's technique, but it certainly enhances its readability. The skilled reporter is almost always more interesting than the historian, and this narrative is much like reading a series of lively, well-written newspaper columns concerning the entire campaign. Nor is it cluttered with distracting footnotes. The documentation (Miers has concentrated on hitherto unpublished sources) is gathered together, with interesting, apropos comment, at the end of the book.

Certainly no substitute for Lloyd Lewis' biography of Sherman, but highly recommended as an introduction to the man and as background material for a study of the campaign.

Reviewed by Capt J. M. Jefferson, Jr.

✓ Check List

About Marines

The Assault on Peleliu	Monograph Hq USMC	2.50
Battle for Tarawa	Monograph Hq USMC	1.50
Boot	Cpl Gilbert Bailey	2.50
Bougainville and the Northern Solomons		
	Monograph Hq USMC	2.00
Coral and Brass	Gen H. M. Smith	3.00
Defense of Wake	Monograph Hq USMC	1.25
Devil Birds	Capt John A. DeChant	4.00
Fix Bayonets	Col John W. Thomason, Jr	3.00
Follow Me	2d Marine Division Unit History	6.00
Guadalcanal Campaign	Monograph Hq USMC	4.25
The Fourth Marine Division	Unit History	5.00
Guadalcanal Diary	Richard Tregaskis	.25
History of the U. S. Marine Corps		
	Col Clyde H. Metcalf	5.50
Hit the Beach	Maj William C. McCahill	4.95
The Island (Guadalcanal)	Capt Herbert Merrillat	3.00
The Island War	Maj Frank O. Hough	5.00
The Landing Party Manual		3.50
The Marine Corps Reader	Col Clyde H. Metcalf	3.00
Marines at Midway	Monograph Hq USMC	.50
The Ninth Marines	Unit History	5.00
The Old Breed: 1st Marine Division	George McMillan	6.50
On to Westward	Robert Sherrod	3.00
Saipan: The Beginning of the End		
	Monograph Hq USMC	3.25
Short History of the Marine Corps		1.00
(175th Anniversary Issue of Marine Corps Gazette)		
Sixth Marine Division	Unit History	5.00
The Spearhead: 5th Marine Division		
	Howard M. Conner	6.50
The Story of Wake Island	Col James P. S. Devereux	2.75
The Third Marine Division	Unit History	5.00
This Is War*	David Douglas Duncan	3.80
*No discount		
Uncommon Valor	Six Combat Corres.	3.00
The U. S. Marines and Amphibious War*		
	Isely and Crowl	7.50
*Special price to Marine Corps Association members		6.00
U. S. Marines on Iwo Jima		
	Capt Raymond Henri, USMC	3.50
Your Marine Corps in World War II (Pictorial)		3.50

World War II

Battle Report Vol I (Pearl Harbor to Coral Sea)		
	Karig and Kelly	\$5.00
Battle Report Vol II (Atlantic War)		5.00
Battle Report Vol III (Pacific War—Middle Phase)		5.00
Battle Report Vol IV (The End of an Empire)		5.00
Battle Report (Vol V) (Victory in the Pacific)		5.00
The Bismark Episode	Capt Russell Grenfell, RN	3.50
The Campaigns of the Pacific War		
U. S. Strategic Bombing Survey		3.00
Company Commander	MacDonald	3.00
Crusade in Europe	Gen Dwight D. Eisenhower	5.00

This list is revised monthly to include the latest in military and popular books. Are there some new titles that should be added to your library? Remember, there is a ten per cent discount for Association members.

The German Generals Talk	B. H. Liddell Hart	4.00
Guadalcanal: First Offensive	GPO	4.00
History of U. S. Naval Operations in World War II:		
Samuel E. Morrison		
Battle of the Atlantic, 1939-1943		6.00
Rising Sun in the Pacific, 1941-1943		6.00
Operations in North African Waters		6.00
Coral Sea, Midway, and Submarine Actions		6.00
The Struggle for Guadalcanal		6.00
Breaking the Bismarks Barrier		6.00
History of World War II	Francis T. Miller	5.00
Interrogations of Japanese Officials		
2 Vol. U. S. Strategic Bombing Survey—Set		3.00
Invasion 1944: Rommel and the Normandy Campaign		
LtGen Hans Speidel		2.75
Life's Picture History of World War II		10.00
Long the Imperial Way	Hanama Tesaki	3.50
Okinawa: The Last Battle	GPO	7.50
Our Jungle Road to Tokyo	LtGen R. L. Eichelberger	4.50
Patton and His Third Army	Col Brenton G. Wallace	3.00
Salerno to the Alps	LtCol Chester G. Starr	6.00
The Second World War	MajGen J. F. C. Fuller	5.00
Strategy in World War II	LtCol Alfred H. Burne	1.75
Thumb Nail History of World War II	H. H. Husted	5.00
War and Civilization	Arnold J. Toynbee	2.50

Texts and References

Airborne Warfare	MajGen James M. Gavin	\$3.00
A Short History of Russia	B. H. Sumner	5.00
Art of War	Sun-Tzu	2.00
The Art of War on Land	LtCol Alfred H. Burne	2.50
Axis Grand Strategy Compiled from Original Material Prepared by Staff Officers of the German Army, Navy & Air Force		5.00
Bombing and Strategy	Adm Sir Gerald Dickens, RN	1.75
Calculated Risk	Mark W. Clark	5.00
The Case of Comrade Tulayev	Victor Serge	3.00
Centerfire American and British Pistol and Revolver Cartridges	H. P. White and B. D. Munhall	7.50
The Coral Sea	Alan Villiers	4.00
Do Or Die (Judo)	Col A. J. D. Biddle	1.50
Drill and Command	Infantry Journal	
	Cloth 2.50, Paper	1.00
The Effects of Atomic Weapons		3.00
The Front Is Everywhere	LtCol W. R. Kintner	3.75
Guidebook for Marines		1.50
Fear, War and the Bomb	P. M. S. Blackett	3.50
Front-Line Intelligence		
LtCol Stedman Chandler & Col Robert W. Robb		2.50
The Influence of Sea Power Upon History		
Capt A. T. Mahan		5.00
Intelligence is for Commanders		
LtCol P. B. Davidson & LtCol R. R. Glass		3.85
Hatcher's Book of the Garand		
MajGen Julian S. Hatcher		6.00
Hatcher's Notebook	MajGen Julian S. Hatcher	5.00
How to Shoot a Rifle—NRA	Infantry Journal	1.75
Jomini's Art of War	LtCol J. D. Hittle	2.50
The Life of Nelson	Capt A. T. Mahan	5.00
Machine Warfare	MajGen J. F. C. Fuller	2.50
Mahan on Naval Warfare		3.00
Mahan on Sea Power	William E. Livezey	3.50
Manual for Courts-Martial*	United States 1951	2.50
*No discount		
Mastering the Rifle	(Bud) Fisher	2.75
The Military Staff	LtCol J. D. Hittle	2.50
Modern Judo, 2 Volumes	Charles Yerkow	6.00
New Drill Regulations, 1949 Edition		1.50
The Noncom's Guide	MSPCo	2.50
NRA Book of Small Arms Vol I (Pistols)		10.00
NRA Book of Small Arms Vol II (Rifles)		12.50
The Officer's Guide (Army)	MSPCo	3.50
Picture History of Russia		3.75
Pocket Encyclopedia of Atomic Energy	Frank Gaynor	7.50

The Price of Survival	Joseph B. Sweet	2.85
Rand McNally Road Atlas		1.25
Riot Control	Sterling Wood	2.50
Rockets and Jets	Zim	3.00
Russia and the West in Iran	George Lencowski	4.50
Sea Slang of the Twentieth Century: Wilfred Granville		3.75
Small Arms of the World	W. H. B. Smith	6.00
The Soldier's Load and the Mobility of a Nation		
Col S. L. A. Marshall		1.00
Soviet Arms and Soviet Power		
Gen Augustin Guillaume		3.50
Speech for the Military	Brenlock & Rights	2.00
Strategic Air Power: The Pattern of Dynamic Security	Stephan T. Possony	5.00
Strategy in Poker, Business & War	John McDonald	2.50
Theory of the Interior Ballistics of Guns	J. Corner	8.00
The Uniform Code of Military Justice		
Col F. B. Weiner		3.50
Walther Pistols	W. H. B. Smith	2.50
War in Korea	Marguerite Higgins	2.75
Way of a Fighter	MajGen Claire Lee Chennault	4.50
Why Not Load Your Own?	Col Townsend Whelen	3.50

MARINE CORPS MANUAL

The GAZETTE has been informed by Government Printing Office that the Marine Corps Manual is out of print and will not be reprinted. The GAZETTE regrets it is unable to fill any orders for the Manual. We still have a few binders on hand at \$1.60 each, no discount.

Historical

America and War	Col Marion O. French	\$5.00
Adventures of General Marbot		
Col John W. Thomason, Jr		3.75
Battle Studies	Col Ardant DuPicq	2.50
Caesar's Gallic Campaigns	LtCol S. G. Brady	2.50
Jeb Stuart	Col John W. Thomason, Jr	5.00
Hitler and His Admirals	A. K. Martienssen	4.00
Instructions to His Generals	Frederick the Great	2.00
Lee's Lieutenants, three volumes	Douglas S. Freeman	21.00
Lincoln Finds a General	Kenneth P. Williams	12.50
Ordeal by Fire	Fletcher Pratt	5.00
Preble's Boys	Fletcher Pratt	5.00
Randall and the River of Time	C. S. Forester	3.00
Rock of Chickamauga	Freeman Cleaves	3.75
Roots of Strategy	Col Thomas R. Phillips	3.00
The War of 1812	Francis F. Beirne	5.00
Young Washington—Freeman 2 Vol—Set		15.00
History of U. S. Naval Aviation	Turnbull and Lord	5.00
History of the American Navy	Howard I. Chapelle	10.00

Leatherhead, cartoon version of life in boot camp, is the fastest moving item in our Bookshop. Get your copy now.

FICTION

The GAZETTE Bookshop can supply all current novels. Older titles may be out of print, but the Bookshop will attempt to obtain any work of fiction desired by its customers.

Marine Corps Gazette, Box 106, Marine Corps Schools, Quantico, Va.

Subscription

Please enter my subscription to the GAZETTE. As a member or former member of the Marines or other of the Armed Forces I am eligible for membership in the Marine Corps Association upon payment of subscription.

- ☐ I enclose \$3.00 for a one year subscription to the GAZETTE.
- ☐ I enclose \$5.50 for a two year subscription to the GAZETTE.
- ☐ As I am qualified for membership, enroll me as a member of the Marine Corps Association.*

NAME AND RANK (Print) _____

ADDRESS (Print) _____

Signed

*Membership in the Marine Corps Association includes your subscription to the GAZETTE and a 10 per cent discount on purchases from the GAZETTE Bookshop.

Gazette Bookshop, Box 106, Marine Corps Schools, Quantico, Va.

Book Order

Enclosed is my check/money order for \$ _____
for which please send me the following books which I
have listed by title and price.

Title	Price
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____

NAME AND RANK (Print) _____

ADDRESS (Print) _____

Members of the Marine Corps Association are entitled to 10 per cent discount on books.
Make checks or money orders payable to GAZETTE Bookshop. Sorry, no C.O.D.'s, please

Need Help With Christmas Shopping?

Let the
GAZETTE BOOKSHOP
Help You

Use your Marine Corps Association membership privileges
on these specials:

	Regular Price	Our Price
This Is War	\$ 4.95	\$3.80
Life's Picture History of WW II	10.00	7.50
U. S. Marines & Amphibious War	7.50	6.00
Short History of Marine Corps		1.00
Leatherhead		1.00

A limited number of the GAZETTE's famous cover reprints in four colors by John Clymer and Tom Lovell, suitable for framing. Set of 6 reprints 50 cents.

Do not apply discounts to these prices!

GAZETTE BOOKSHOP
Box 106, MCS
Quantico, Va.

